WORLD CATALOGUE OF OLIVE VARIETIES

INTERNATIONAL OLIVE OIL COUNCIL

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The scientific team designated to compile this catalogue, under the guidance of the IOOC Executive Secretariat, is made up of technical officers from the Secretariat and internationally renowned researchers with broad experience in varietal cataloguing in their respective countries. The important work they have done has made the *World Catalogue of Olive Varieties* come about.

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PREFACE

The olive tree has been cultivated for approximately 6000 years in the Mediterranean countries where 95% of olive resources are located. Its habitat is determined by the Mediterranean climate, which is characterised by relatively mild winters and hot, dry summers. The areas belonging to this climate type lie between 30° and 45° north and south latitudes. With the discovery of America, olive growing spread gradually on a limited scale to South and North America. The 19th century then saw its spread to Australia and nowadays it is also grown elsewhere.

Some 850 million olive trees are grown in the world on approximately 8.7 million hectares of land. Around 10 million tonnes of olives are produced, 90% of which is channelled into oil production while the remaining 10% is for table olives.

The majority of olive orchards are cultivated along traditional lines. This type of olive growing has several characteristics, the most important of which are now described.

As a result of the longevity of the olive tree, which can live for centuries, orchards of very differing ages exist alongside each other. For hundreds of years this heterogeneity has not caused any serious drawbacks to cultivation but nowadays the decline of many orchards is due to it. For instance, it is impossible for an olive orchard established in mountain areas in the 19th century to be the basis of olive growing that is open to the global market of the 21st century.

The proverbial adaptation of the olive tree to the Mediterranean climate is the reason why it is basically a dry-farmed crop. In such conditions, however, productivity per hectare is limited. For this reason, through history, demand for olive oil has been met by gradually occupying and if necessary breaking up increasingly more fragile soils.

This strategy has given rise to two characteristics that hamper the survival of numerous olive orchards. The first one is the marginal nature of the groves. Much of the land where olives are grown is intrinsically incapable of producing profitable crops under dry-farming conditions. The second characteristic is their fragility, the determinant of which is erosion. It is estimated that a large percentage of olive orchards have lost soil through erosion, and continue to do so.

In olive cultivation labour is required primarily for harvesting. In areas where it is a monoculture, the demand for labour is seasonal. Even so, this possibility of jobs is still essential in many olive-growing areas where unemployment is the chief socio-economic problem.

Lastly, traditional olive growing has essentially depended on empirical techniques. For instance, in countless olive-growing areas virtually only one variety is cultivated, which was selected locally centuries ago by anonymous, discerning growers. The fact that large propagules were required for the vegetative propagation of these cultivars meant that they were confined to a fairly extensive tract around their assumed source area.

Nevertheless, growing demand in the latter part of the 20th century has changed matters considerably. The measures taken by the Mediterranean countries, the attractive prices fetched by olive oils on the marketplace, the growing demand from new non-Mediterranean consumer countries as a result of promotional campaigns and the positive findings of scientific research have led to the creation of new olive orchards capable of taking up this challenge. The expansion of irrigated olive farming, new planting and harvesting methods, the need for soil conservation, the increasing concern for quality, etc are making it

necessary for traditional olive growing to change its set ways. The olive orchards of the 21st century will definitely be very different to those known so far.

This is the background to the need to catalogue the existing varieties in the world in order to ensure that this heritage is preserved and as a pre-requisite for obtaining new varieties.

The first fruit trees were domesticated in the Near East some 6000 years ago. In this area, arboriculture as it is known today began some 4000 years after the start of agriculture. This long lag may possibly have been because the seeds of the fruit species originating in this area were unable to make the characteristics of the mother plants come true. It is possible, however, that the seeds of selected trees were used initially, as had been done for sowing cereals and pulses, and that some characteristics became established with time, such as larger fruit size.

However, fruit tree cultivation did not come into being until vegetative propagation was mastered. There is archaeological evidence that the olive, the vine, the fig and the date palm were the first fruit trees to be cultivated by man. These four species have one feature in common: they are easy to propagate vegetatively by simple methods (using ovuli, hardwood cuttings, suckers) for which relatively large propagules are generally required. The first olive growers may feasibly have picked out individuals that stood out because of certain worthwhile characteristics in wild olive groves or in groves of wild olives improved through selection. Currently, cultivated varieties differ from wild ones in that the fruit is larger and contains more oil. These two criteria, together with yield and adaptation to the environment, must have determined the selection of such individuals for cultivation. Asexual propagation by the methods just mentioned at last made it possible to obtain progeny identical to the mother plant. In the case of the olive, fragments of olive stones distinctly larger than those of wild olives have been found at Teleilat Ghassul (3700-35000 B.C.) to the north of the Dead Sea.

Olive growing spread across the Mediterranean Basin with the expansion of culture. As settlers took propagules of the initial cultivars to new olive-growing areas and the same process of tree selection and cloning was carried out, the cultivated varieties of the countries along both shores of the Mediterranean gradually emerged. Local wild olives, which were known to be inter-fertile with cultivated olives, played a key part in varietal diversification. Their generalised presence throughout all the Mediterranean countries and the possibility of gene introgression of local populations of wild olive in successive selected varieties have led to present-day genetic variability and to the olive's adaptation to different environments.

The generalisation of the process that has just been described in the countries where the olive tree was introduced led to great diversity in cultivars. Studies on the varieties cultivated in France, Greece, Italy, Portugal, Spain, Tunisia and Turkey reveal a varietal structure characterised by a large number of ancient varieties that are normally confined to their assumed area of origin. The existence of a single population-variety – the 'Picholine marocaine' – is reported in Morocco although there are reasonable doubts that this denomination includes different varieties.

Outside the Mediterranean, olive growing has developed basically through the introduction of varieties from other countries. This is the case of the United States, Argentina and Australia.

The increasing exchange of material is altering the situation in traditional olive-growing countries. This is largely due to the reduction in the size of propagule needed for leafy stem propagation and to the concomitant development of a nursery industry. Spain, for instance, has seen spectacular growth of olive orchards in recent years. Over 90% of the orchards are being planted with only three varieties ('Picual', 'Arbequina' and 'Hojiblanca'), which are spreading to areas that are very far from their traditional growing areas without any previous testing in the new locations. The situation is similar in Italy where the traditional cultivars in the olive-growing areas are losing ground in new orchards to varieties that offer better characteristics overall for oil or table olive production.

In addition, the nursery industry has recently started exporting large quantities to various countries. New olive orchards in countries such as Egypt, Morocco, Argentina, Chile, Portugal and Australia are also seeing the gradual inclusion of plant material from various sources.

In the case of the olive there is less risk than in other species that the genetic resources selected by man will disappear. The predominance of traditional olive orchards and the longevity of the species guarantee genetic diversity in the medium term.

So far, varietal cataloguing has been only fragmentary in the traditional olive-growing countries although they do have numerous varietal collections.

The first problem facing collections is the correct identification of accessions. During the processes of varietal selection and dissemination man has used generic naming criteria. These usually refer to some striking characteristic of the variety (fruit, tree, leaf, etc.), or to its end use or to some toponym. This has led to the use of the same name for different varieties (homonyms) and of different names for the same variety (synonyms). Cataloguing has been insufficient, either because of the scope of the studies or because the pomological files used have been incomplete and subjective, which has created considerable confusion over varietal denominations.

Correct varietal identification is crucial at a time when the exchange of plant material is increasing at great speed. This is why it is of such importance to identify the material held in germplasm banks prior to its distribution to the sector. A second problem facing collections is the extent to which the varieties they hold are representative since collections include only part of the varietal wealth of a country and many collections are probably not representative enough of the material cultivated in the countries where they are located.

The growth in plant material exchanges between countries is making it necessary to catalogue varieties. The RESGEN project (Project on the Conservation, Characterisation, Collection and Utilisation of Genetic Resources in Olive), which is being implemented by the International Olive Oil Council with the contribution of the European Community and the Common Fund for Commodities, aims to catalogue correctly the varietal collections held in 16 Mediterranean countries (Algeria, Croatia, Cyprus, Egypt, France, Greece, Italy, Israel, Lebanon, Morocco, Portugal, Slovenia, Spain, Syria, Tunisia and Yugsolavia, F.R.), and to include any varieties surveyed in the countries that are not already held in the collections.

This catalogue features 139 varieties from 23 olive-growing countries that account for almost 85% of olive crop area. The number of varieties described for each country has been determined by the importance of olive growing in the country and by the extent of the variety.

In short, this work aims to stimulate cataloguing of all the varieties of olive cultivated around the world.

Fausto Luchetti
IOOC Executive Director

Acknowledgements

The IOOC wishes to thank the national agencies and the technical officers and scientists from the research centres of all the countries that collaborated in drawing up this catalogue, who are listed below. Their cooperation has been essential since this task would have been more difficult without the information they supplied.

The varietal fact cards and descriptions for each cultivar in the catalogue have been obtained from questionnaires that were designed by Professor Giuseppe Fontanazza and Dr Margherita Cappelletti and which were then completed by the research centres in the different countries and collected by the International Olive Oil Council.

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METHODOLOGY

This *World Catalogue of Olive Varieties* has been compiled on the basis of a descriptor file prepared by the International Olive Oil Council for completion by experts at the research centres of the olive-growing countries.

The base file comprises a list of descriptive characters and a concise bio-agronomic evaluation designed to assemble the chief data available on the most important cultivars.

Information is divided into three sections:

- Passport data
- Morphological characters
- Agronomic and commercial considerations

The *Passport* section indicates the most commonly used name of the cultivar, any synonyms, the country of origin (according to the ISO country codes), the predominant growing areas, the relative importance of the cultivar in the areas where it is distributed and the main purpose for which it is used.

The *Morphological characters* are arranged according to "primary descriptors" and enable the identification and primary characterisation of each cultivar.

Lastly, the section on *Agronomic and commercial considerations* assembles information that may be of use to olive growers, researchers and anyone else involved in the sector.

The data supplied by each research centre as well as by the Olive Germplasm Banks at Córdoba (Spain) and Florence (Italy) were collected and processed and then amplified by an extensive bibliographical review. The end result of this process is the varietal fact cards for the olive cultivars included in this catalogue.

DESCRIPTOR FILE

PASSPORT DATA

This section includes the information considered most pertinent to the identity of the cultivar:

- The most widespread *name* of the cultivar
- The *synonyms* used the most in the area where it is grown
- The *origin* of the cultivar, which indicates the country where it probably originated or where it is most widely distributed
- Its *distribution*, which details the predominant growing areas and the relative importance of the cultivar (in hectares cultivated or percentage of acreage planted)
- The main *purpose* for which the fruit is used, i.e. table olives, olive oil or both.

MORPHOLOGICAL CHARACTERS

The second part of the file contains the morphological characters which, when used systematically, enable the primary characterisation and identification of the cultivars. Twenty-six characters have been chosen that are considered to be of most use for this purpose.

The characters have been selected on the basis of the following criteria:

- Consistency between individuals and years for the same genotype;
- Discriminatory capacity between different genotypes;
- Possibility of guaranteeing reliable, fast and cost-effective identification.

The morphological characters have been arranged in terms of specific quantitative (grams, centimetres) or qualitative descriptors (shape, expression of morphological characteristics).

For the quantitative characters, first the range of the possible variations in the varieties was determined on the basis of the existing scientific literature and then a series of "levels" were established, each of which represents a specific quantitative interval for the character concerned.

For the qualitative characters, objective reference markers have been established for the descriptions, with accompanying photos, and the categories (levels) established are much simpler.

The catalogue includes life-size photographs of the leaves, fruit and stone of each variety in two positions (1:1 scale) in order to give a clear picture of the morphological characteristics.

Characters of the tree

Vigour: This refers to both the size of the tree and the intrinsic ability of the scaffold branches and shoots to

grow in length and width. The following categories have been established:

Weak: Tree whose growth is modest even under optimal agronomic conditions. When mature, the trunk (height and/or cross-section) and the area projected by the canopy of the tree are less than what might be expected of a specimen of this species.

Medium: Tree which, in each area and when applied normal cultural practices, displays the average development expected of an olive tree.

Strong: Tree which, in each area and when applied normal cultural practices, displays strong growth and marked trunk and canopy development in terms of both height and volume, and which has vigorous, long branches.

Growth habit: This character describes the natural distribution of the scaffold branches and shoots irrespective of training shape and vigour. Three categories have been established:

Drooping: This is characterised by plagiotropic branching, i.e. by shoots and limbs that are small in diameter and bend downwards.

Spreading: This is the natural growth habit of the species, characterised by initial orthotropic branching. The weight of the canopy and/or of the crop subsequently forces the limb to bend down and turn in the direction in which the greatest amount of light and space is available. The canopy becomes hemispherical in shape, even when the olive has several trunks, which always remain distinct from each other.

Erect: This habit is characteristic of certain cultivars whose branches tend to grow vertically and to display strong apical dominance. When developing, the tree is fairly conical in shape, then becoming cylindrical on reaching maturity. The erect growth habit does not always go hand in hand with vigour. However, as a rule, cultivars that have an erect stance are usually also vigorous although there are some major exceptions.

Canopy density: This parameter indicates the abundance of canopy vegetation and can be measured by the possibility of light penetration. It is the result of the interaction between the length of the internodes, the number and vigour of the shoots and the size of the leaves. It is classified into three categories:

Sparse: This is normally associated with fast-growing cultivars with long internodes. From any point "gaps" are observed through which light can penetrate.

Medium: This is the density typical of the species. Vegetation is abundant but internode length and growth always leave internal areas that produce a half-light effect.

Drooping growth habit

Spreading growth habit

Erect growth habit

Dense: This is characteristic of cultivars with short internodes, abundant branching and heavy foliage. The surface of the canopy is compact and the inside is shaded.

Characters of the leaf

The first three characters are quantitative and the fourth is qualitative. They are observed in samples of approximately 40 mature leaves taken from the middle section of 8-10 one-year-old shoots chosen from the most representative shoots on the south-facing side of the tree at shoulder level.

Shape: This is determined by the ratio between the length (L) and the width (W):

Elliptic	(L/W <4)
Elliptic-lanceolate	(L/W 4-6)
Lanceolate	(L/W >6)

Length:

Short	(<5 cm)
Medium	(5-7 cm)
Long	(>7 cm)

Width:

Narrow	(<1 cm)
Medium	(1-1.5 cm)
Broad	(>1.5 cm)

Longitudinal curvature of the blade: The leaf blade can be classified into four categories according to the twisting along its longitudinal axis:

Epinastic
Flat
Hyponastic
Helicoid

SHAPE

Elliptic — *Elliptic-lanceolate* — *Lanceolate*

LONGITUDINAL CURVATURE OF THE BLADE

Epinastic — *Flat* — *Hyponastic* — *Helicoid*

Characters of the inflorescence

The parameters considered are: (a) average inflorescence length, determined from a sample of 40 inflorescences at the white bud stage, taken from the middle section of 8-10 fruiting shoots (previous year's growth) chosen from the most representative shoots on the south-facing side of the tree; (b) the average number of flowers per inflorescence, determined from the same inflorescences.

Length:

Short	(<25 mm)
Medium	(25-35 mm)
Long	(>35 mm)

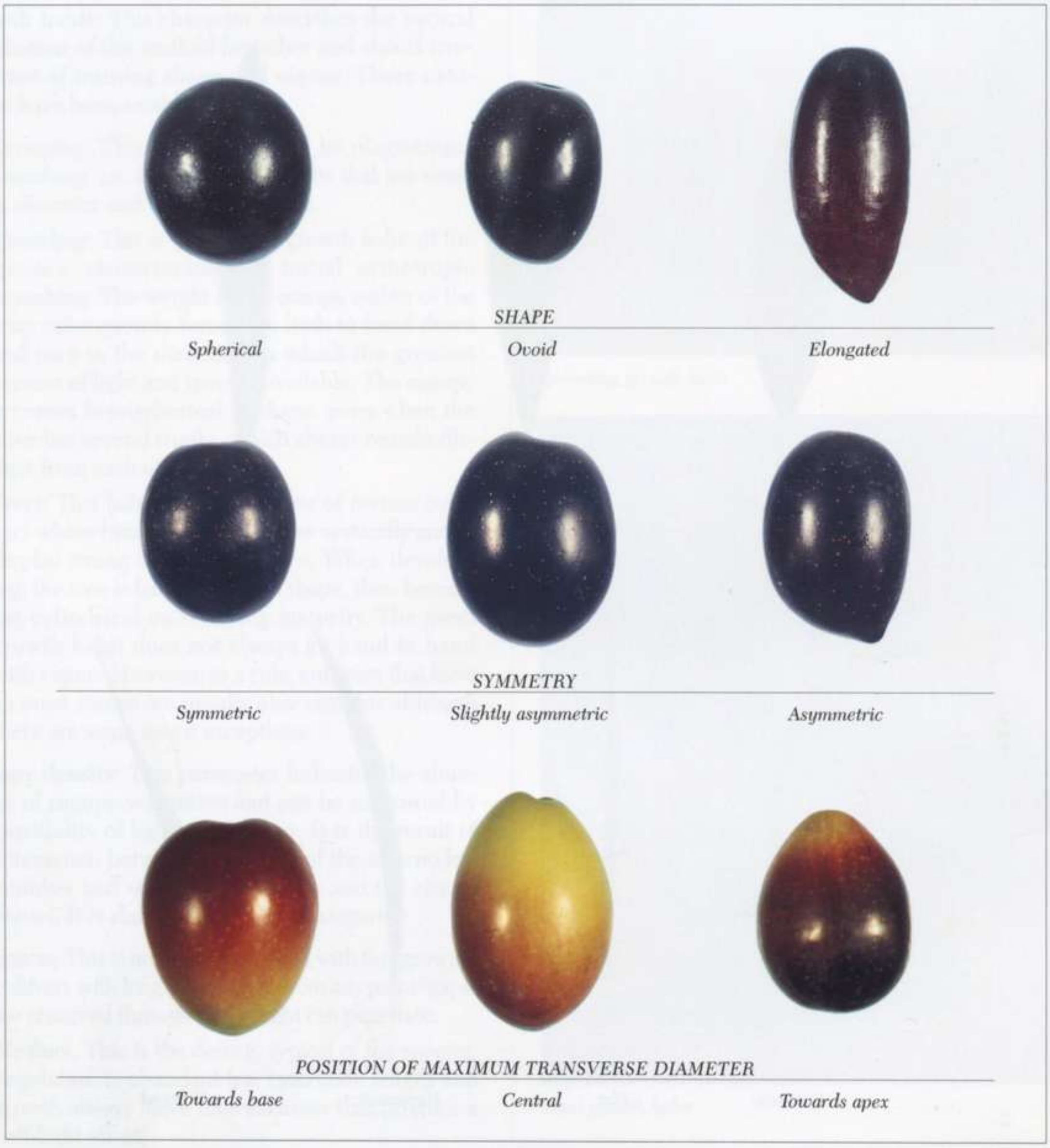
Number of flowers/inflorescence:

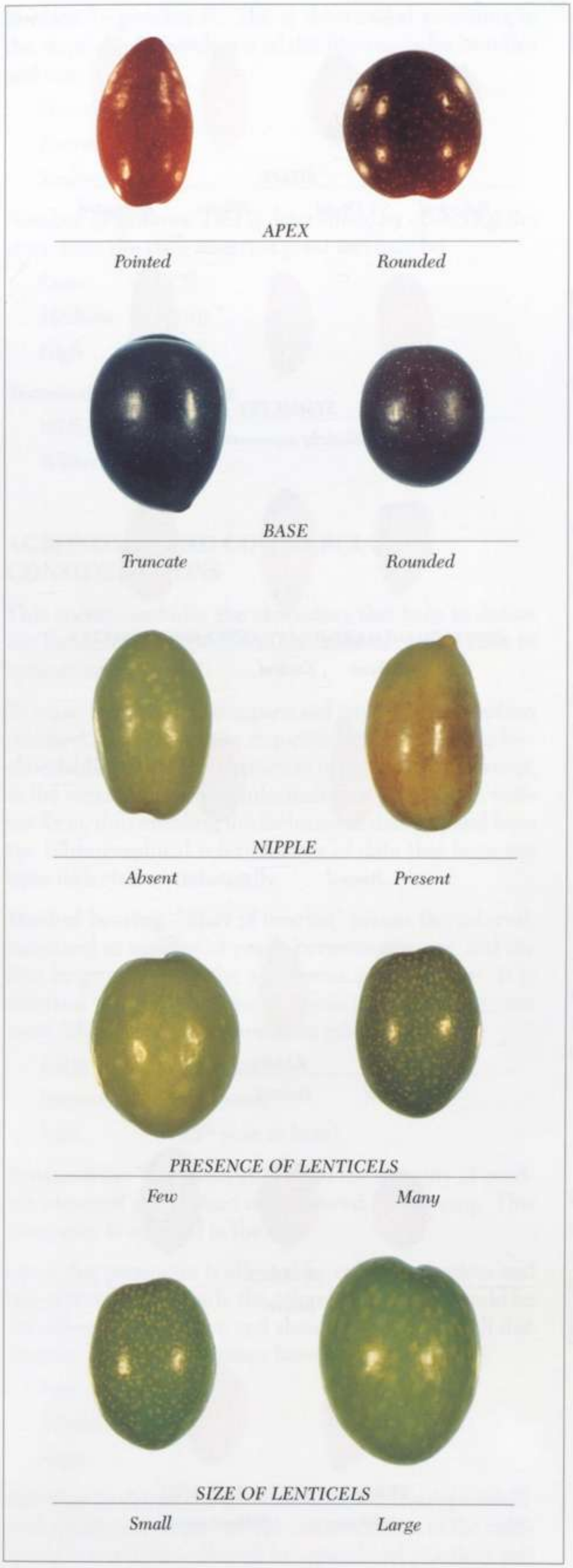
Low	(<18 flowers)
Medium	(18-25 flowers)
High	(>25 flowers)

Characters of the fruit

These characters are determined in a sample of 40 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south-facing side of the tree. Fruits with malformations or very small or very large fruits with respect to the population as a whole are discarded from the sample.

The fruit is described when colour change is completed.





For some characters, reference is made to two positions of the fruit when viewed longitudinally. Position "A" is the position in which the fruit shows the greatest asymmetry when held by either end between the index finger and thumb. Position "B" is reached by turning the fruit 90° in such a way as to present the most developed part to the observer.

Weight: The following categories have been defined on the assumption that each variety has been cultivated in the normal agronomic conditions for its growing area:

Low (<2 g)
Medium (2-4 g)
High (4-6 g)
Very high (>6 g)

Shape (in position A): This is determined from the ratio between the length (L) and width (W):

Spherical (L/W <1.25)
Ovoid (L/W 1.25-1.45)
Elongated (L/W >1.45)

Symmetry (in position A): This is determined by the extent to which the two longitudinal halves match:

Symmetric
Slightly asymmetric
Asymmetric

Position of maximum transverse diameter of the fruit with respect to the stalk (in position B):

Towards base (positioned towards stalk)
Central
Towards apex

Apex (in position A):

Pointed
Rounded

Base (in position A):

Truncate
Rounded

Nipple: This characteristic of the tip of the fruit style may be:

Absent
Present

Presence of lenticels: The characters of the lenticels are determined when the fruit is fully developed but still green. They are inspected visually and there may be:

Few
Many

Size of lenticels: When compared with other cultivars they may be:

Small
Large

The characteristics of the lenticels are listed together in the varietal fact cards in the catalogue.

Characters of the endocarp (stone)

The endocarp is the internal, woody part of the fruit that encloses the seed and that is used for the structural observations whereas the term stone refers to the endocarp and seed together, which is used to determine the weight.

The description is carried out on the stones of the 40 fruits used as the sample for the carpological characteristics. As in the case of the fruit, reference is made to two positions in the case of some characters. Position "A" is normally the position of maximum asymmetry and it is the position at which the carpel suture faces the observer. Position "B" is reached by turning the fruit 90° in such a way as to present the most developed part to the observer. On the whole, the characters of the endocarp are very discriminating in identifying the varieties.

Weight: The following categories have been defined on the assumption that each cultivar has been cultivated in the normal agronomic conditions for each growing area:

Low	(<0.3 g)
Medium	(0.3-0.45 g)
High	(>0.45 g)

Shape (in position A): This is determined from the ratio between the length (L) and width (W):

Spherical	(L/W <1.4)
Ovoid	(L/W 1.4 <1.8)
Elliptic	(L/W 1.8-2.2)
Elongated	(L/W >2.2)

Symmetry (in position A): This is determined from the extent to which the two longitudinal halves match:

Symmetric
Slightly asymmetric
Asymmetric

Position of maximum transverse diameter of the stone with respect to the stalk insertion point (in position B):

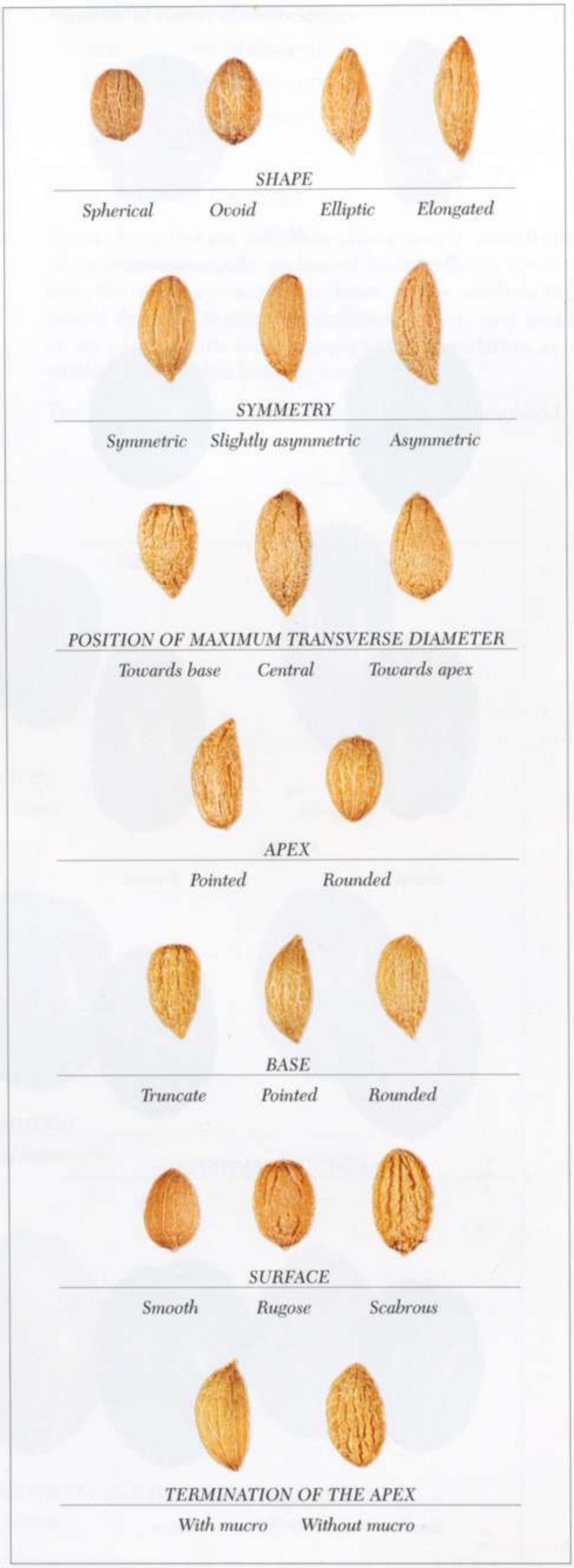
Towards base (positioned towards insertion point)
Central
Towards apex

Apex (in position A):

Pointed
Rounded

Base (in position A):

Truncate
Pointed
Rounded



Surface (in position B): This is determined according to the depth and abundance of the fibrovascular bundles and may be:

Smooth

Rugose

Scabrous

Number of grooves: This is determined by observing the stone from the stalk insertion point and may be:

Low	(<7)
Medium	(7-10)
High	(>10)

Termination of the apex:

With mucro

Without mucro

AGRONOMIC AND COMMERCIAL CONSIDERATIONS

This section includes the characters that help to define the bio-agronomic profile of the cultivar with a view to optimising its usage.

To make it possible to compare and unify the information received, many data were requested according to the levels established for the characters (descriptors). However, in the varietal cards, this information is provided in written form, thus enabling the inclusion of data gleaned from the bibliographical references or of data that have not been collected systematically.

Start of bearing: "Start of bearing" means the interval, measured in number of years, between planting and the first large crop from the agronomic point of view. It is referred to the behaviour of nursery, container-grown trees. Three categories have been established:

Early	(3rd year)
Intermediate	(4th year)
Late	(5th year or later)

Productivity: "Productivity" means the quantity of product obtained per surface unit covered by the crop. This parameter is referred to the tree.

Since this parameter is affected by cultural practices and the environment, clearly the reference markers should be considered comparative and should be used with all due caution. Three broad groups have been defined:

Low

Medium

High

Bearing: In the case of this character too, the repeatability depends only in part on the characteristics of the cultivar in that it is also affected by agricultural practices and environmental conditions. Also, the definition ought to be given together with suitable indices. For this reason, only two categories have been established:

Alternate: This is when the cultivar displays clear irregularities in bearing, even under normal agronomic conditions.

Constant: This is when there are only slight fluctuations in the annual crop obtained from trees at full bearing.

Oil yield at the mill: This character is influenced heavily by the time of harvest and the extraction method used. The cultivars have been divided into three categories on the basis of the information available:

Low	(<18%)
Medium	(18-22%)
High	(>22%)

Flesh detachment from the stone: Two categories have been established for this character, which is of interest for table olives only:

Freestone

Clingstone

Rooting ability: This character refers to the rooting ability when mist propagated as leafy stem cuttings with conventional IBA treatment. Four categories have been identified for this character:

Nil	
Low	(<20%)
Medium	(20-60%)
High	(>60%)

Time of flowering: In this case, each item of information is of comparative value for specific environments and is relative to standard levels that are still not very homogeneous. Three categories have been identified:

Early

Intermediate

Late

Compatibility: This defines the characteristic that enables the pollen to germinate and develop until fertilisation in the flower. In this way the cultivar is self-compatible and depends much less on the presence of pollinisers in order to bear crops. Three categories have been established:

Self-compatible (when there are only small differences in fruit set between selfing and open pollination)

Partially self-compatible (when fruit set may occur occasionally as a result of selfing)

Self-incompatible (when fruit set is not possible by selfing)

Pistil abortion: It is customary to find perfect and staminate flowers on the inflorescence. "Pistil abortion" means the set of malformations that eliminate the viability of the female apparatus and reduce the role of the flower to mere pollination. Along with the cultivar, various environmental and agronomic factors have an influence on this phenomenon. Three categories have been established to describe this character:

Low	(<20%)
Medium	(20-60%)
High	(>60%)

Time of ripening: The time of ripening of the olive depends on the cultivar and the environment. Three categories have been established for this character:

Early	(late October)
Intermediate	(early winter)
Late	(late winter)

The time of harvesting depends on the purpose of the crop and may or may not coincide chronologically with the time of ripening.

Fruit removal force: This parameter is linked to physiological maturation and can be used at the start of the harvest season as an indicator for mechanical harvesting. The cultivars are evaluated during colour change and are grouped into three categories:

Low	(<4 N)
Medium	(4-6 N)
High	(>6 N)

Tolerance of, or sensitivity to, biotic and abiotic factors

This section gives the information available on the main pests and diseases and the environmental factors that damage crop production or the tree, or that limit tree growth and affect productivity.

Pests or diseases

The following pests and diseases, which are of most general interest, have mainly been taken into account:

Verticillium dahliae (verticillium wilt)
Spilocea oleagina (olive leaf spot)
Gloeosporium olivarum (olive anthracnose)
Pseudomonas savastanoi (olive knot)
Bactrocera (Dacus) oleae (olive fly)

Abiotic factors

Information is given in relation to specific situations of stress affecting wide areas of the olive-growing countries. The following abiotic factors have been considered:

Cold
Drought
Salinity
Lime

Two categories have been established for the descriptors in this last section of the file dealing with pests and diseases and stress:

Sensitive/susceptible: This is when greater or specific damage has been observed

Tolerant/resistant: This is when the cultivar has shown "tolerance" in situations of fairly generalised attack or damage, i.e. it shows no clear symptoms of damage or injury.

When no category is assigned, this means that data are not available or that the response is not clear-cut.

As in the case of the preceding section, the information on these characters is provided in written form, which has made it possible to include information collected from the bibliographical references.

ALBANIA

ALBANIA

OLIVE CROP AREA: 45,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	3,500	3,500	3,500
Imports	0	0	0
Exports	0	0	0
Consumption	3,500	3,500	3,500
TABLE OLIVES (t)			
Production	3,000	3,000	3,000
Imports	0	0	0
Exports	0	0	0
Consumption	3,000	3,000	3,000

Kalinjot

SYNONYMS:	"Kanine".
ORIGIN:	Albania (AL).
DISTRIBUTION:	Vlorë, Sarandë, Fier, Mallakastër, Lushnjë, Tepelenë, Durrës, Shkodër and Lezhë. It covers about 42% of the country's olive-growing acreage.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This is the most important Albanian cultivar for table olive production. Its start of bearing is intermediate.

Its time of flowering is intermediate and it has a relatively low pistil abortion rate. It is self-compatible although fruit set is improved when suitable pollinisers are used. Productivity is high and alternate. The fruit has a very deep stalk cavity and ripening is phased. It is suitable for black table olives and in some years it is also used for oil extraction. It has a high oil content and it is freestone.

It is resistant to cold, olive knot and olive anthracnose but particularly sensitive to olive leaf spot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	medium

LEAF

Shape:	lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	spherical
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded-truncate
Surface:	rugose
Number of grooves:	low
Termination of apex:	with mucro

WORLD CATALOGUE OF
OLIVE VARIETIES

ALGERIA

ALGERIA

OLIVE CROP AREA: 206,284 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	50,500	15,000	39,500
Imports	0	0	0
Exports	0	0	0
Consumption	50,000	31,500	35,000
TABLE OLIVES (t)			
Production	12,000	11,000	30,000
Imports	0	0	0
Exports	0	0	0
Consumption	14,000	12,500	24,500

Azeradj

SYNONYMS: "Adjeraz".

ORIGIN: Algeria (DZ).

DISTRIBUTION: Soummam and Bejaïa. It covers approximately 10% of the country's olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is considered hardy and it has a low rooting ability. It is self-compatible although its productivity improves when the "Bouchouk de Soummam" cultivar is grown in the orchard. Its start of bearing is intermediate. It flowers early and in general it has a medium pistil abortion rate. It is also used as a polliniser for the "Chemlal de Kabylie" cultivar.

Productivity is medium and alternate. The fruit ripens early. It is used for extracting oil (60-70% of production), which is of good quality, and it has a medium-to-low oil content. In some years the fruit is used for green or black pickling although it is clingstone.

It is resistant to drought and salinity.

Morphological characters

TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	present
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Blanquette de Guelma

SYNONYMS: "Blanquette".

ORIGIN: Algeria (DZ).

DISTRIBUTION: It is found in the eastern part of the Constantine region, extending southwards towards Tunisia.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is of medium hardiness and it has a high rooting ability. It comes into bearing late. It is self-compatible and it has a medium pistil abortion rate. Its time of flowering is intermediate. Productivity is medium and alternate. Fruit ripening is relatively late. Considered dual-purpose, it is used for oil production and green pickling. It has a low oil content. The fruit varies greatly in size and it is clingstone. Alternate bearing tends to decrease when the tree is cultivated in fertile soil.

It is resistant to cold and moderately tolerant of drought.

Morphological characters

TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	medium

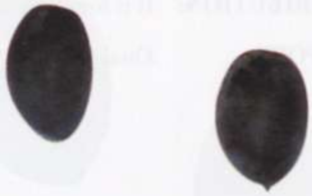
INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic
Length:	short
Width:	broad
Longitudinal curvature of the blade:	flat

FRUIT

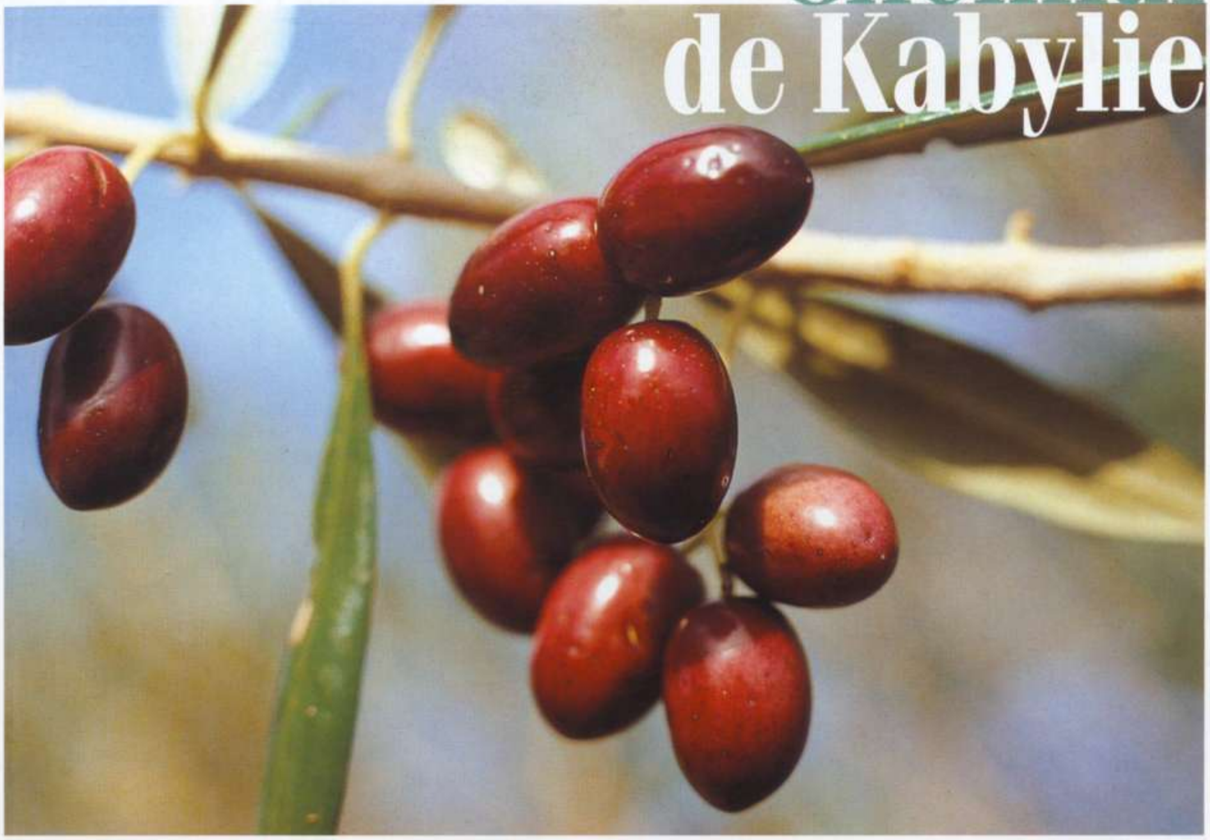


Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	low
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	rugose
Number of grooves:	high
Termination of apex:	with mucro

Chemlal de Kabylie



SYNONYMS: "Achamlal", "Achamli", "Achemlal".

ORIGIN: Algeria (DZ).

DISTRIBUTION: Central-eastern Algeria (Grande Kabylie). It is found on both sides of the Djurdjura range, from Khemis El Khechna to Tizi-Ouzou, Bouïra and Akbou. It covers about 30% of the olive-growing acreage of the country.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety from the Grande Kabylie region has spread to very difficult, steep land. It is characterised by great heterogeneity and is considered locally as a population-variety. It has a low rooting ability and its start of bearing is intermediate. It has a low pistil abortion rate. It is androsterile which means it needs pollinisers that flower relatively early. The cultivar used the most for this purpose is the "Azeradj", which flowers at the same time as this variety. It ripens late and it has a high removal force. Productivity is high and alternate.

It gives excellent quality oil although its oil yield is low.

It is resistant to cold and drought and moderately resistant to olive leaf spot. It is susceptible to olive knot and verticillium wilt.

Morphological characters

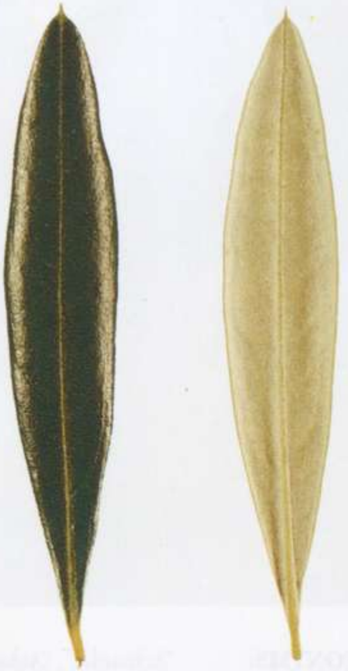
TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	high

LEAF



SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	broad
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without or with mucro

Limli

SYNONYMS: "Imeli", "Limeli".

ORIGIN: Algeria (DZ).

DISTRIBUTION: South-eastern Djurdjura between Sidi Aïch and Bejaïa.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is of medium hardiness and it has a low rooting ability. It comes into bearing early. It is self-compatible and it has a low pistil abortion rate. Its time of flowering is intermediate and it produces abundant pollen. The time of harvesting is intermediate and the fruit has a medium removal force. Productivity is alternate in traditional olive orchards and constant in plantations established more recently. The oil yield is medium-low.

It is not very tolerant of cold but it shows good resistance to drought. It is moderately resistant to olive leaf spot, olive knot and olive anthracnose and it is susceptible to verticillium wilt.

Morphological characters

TREE

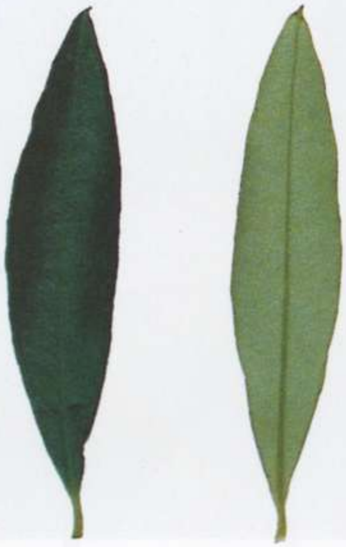
Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	high

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	epinastic



FRUIT

Weight:	low
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	low
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	pointed
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Sigoise

SYNONYMS: "Olive de Tlemcen", "Olive du Tell". It is very similar in characteristics to the "Picholine marocaine".

ORIGIN: Algeria (DZ).

DISTRIBUTION: West of the country; it covers 20-25% of total olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety takes its name from the region where it is cultivated (Sig plain) and it is also known as "Olive du pays". It is found mainly on the plains of Oran and to a lesser extent in the eastern part of the country (Constantine).

It is a vigorous cultivar with a spreading growth habit and abundant vegetation that requires careful pruning to ensure the fruit reaches the right size. While readily adaptable, it responds very well to cultural care, particularly irrigation. It is partially self-compatible. Its start of bearing is intermediate, and its productivity is medium and alternate. Although dual-purpose, it is cultivated primarily for table olives because of the quality of the fruit flesh. 20-30% of production is intended for oil, 50-60% for green pickling and 20-30% for black pickling. It gives a low oil yield. It is considered moderately hardy and it has a medium rooting ability. The fruit ripens early. It has a medium removal force and it is freestone.

It is tolerant of saline water and moderately resistant to cold, drought and verticillium wilt.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

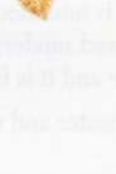
SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central or towards base
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro



ARGENTINA

ARGENTINA

Olive crop area: 57,600 ha

	1996/97	1997/98	1998/99
Olive oil (t)			
Production	11,500	8,000	6,500
Imports	6,500	7,000	3,500
Exports	6,000	7,500	6,000
Consumption	8,000	8,000	8,000
Table olives (t)			
Production	40,000	50,000	45,000
Imports	0	2,000	0
Exports	24,000	39,000	29,000
Consumption	16,000	15,000	16,000

Arauco

SYNONYMS: "Criolla".
ORIGIN: Argentina (AR).
DISTRIBUTION: Catamarca and La Rioja.
PURPOSE: Table.

Agronomic and commercial considerations

This variety was probably obtained from the selection of olive seedlings introduced into Argentina from Spain. It appears to match the "Azapa" variety of Chile and the "Sevillana" of Peru. It is adapted to the arid climate of the northernmost parts of Argentina (Aimogasta) and it has spread owing to the excellent quality of its fruit (size and colour). In different climatic conditions its productivity is rather low.

It is partially self-compatible. Its time of flowering is intermediate and it has a low pistil abortion rate. It has an intermediate start of bearing. "Manzanilla", "Arbequina", "Pendolino", "Morchiaio" and "Ascolana" are reported as pollinisers in the scientific literature. The pollen has a high germination capacity. Productivity is high and alternate. The fruit has a high removal force. When it starts to mature, it changes in colour from green to greenish yellow, winey pink and then black. Because of its firm flesh, the fruit can be used for different trade preparations. It has a high flesh-to-stone ratio and a low oil content and it is freestone.

It is sensitive to cold and to numerous pests and diseases: verticillium wilt, olive knot, olive anthracnose, sooty mould, olive scale and *Cercospora cladosporioides*. Conversely, it is particularly tolerant of arid, saline and calcareous soils.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	very high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

CHILE

CHILE

OLIVE CROP AREA: 3,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production		insignificant	
Imports	0	0	0
Exports	0	0	0
Consumption	0	0	0
TABLE OLIVES (t)			
Production	10,500	6,000	8,000
Imports	1,000	1,000	1,000
Exports	1,000	1,000	1,000
Consumption	8,500	8,000	8,000

Azapa

SYNONYMS: "Azapeña", "Sevillana de Azapa".

ORIGIN: Chile (CL).

DISTRIBUTION: Azapa, Lluta, La Chimba, Antofagasta, Copiapó and Huasco. It covers 50% of the country's olive-growing acreage.

PURPOSE: Table.

Agronomic and commercial considerations

The origin of this hardy variety is uncertain. It appears to match the "Arauco" variety of Argentina and the "Sevillana" of Peru. It has a medium rooting ability and it comes into bearing early. It is partially self-compatible. Its time of flowering is intermediate and it produces abundant pollen. The fruit ripens late.

Its productivity is medium and alternate and it is affected by exogenous factors such as *El Niño*, which heightens alternate bearing. It has a low oil content and it is clingstone. It is used for green or black pickling although it can also be considered dual-purpose.

It is very resistant to drought and salinity.

Morphological characters

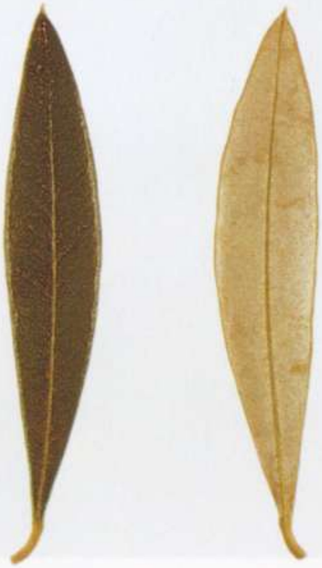
TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF



SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

CROATIA

CROATIA

OLIVE CROP AREA: 27,500 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	1,500	1,500	3,500
Imports	0	0	500
Exports	0	0	0
Consumption	1,500	1,500	4,000
TABLE OLIVES (t)			
Production	500	500	1,500
Imports	500	500	500
Exports	0	0	0
Consumption	1,000	1,000	2,000

Lastovka

SYNONYMS: –

ORIGIN: Croatia (HR).

DISTRIBUTION: It covers 5% of the country's olive-growing acreage. It is the most widespread variety on the island of Korčula where it accounts for about 50% of the total area dedicated to olive growing.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is of medium hardiness. It has a high rooting ability and flowers early. It is self-incompatible and it has a low pistil abortion rate. Ripening is late. Its start of bearing is intermediate, and productivity is high and constant. The fruit has a high removal force and gives a medium oil yield of approximately 20%.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central or towards apex
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	pointed
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	without mucro

Levantinka

SYNONYMS: "Grozdaca", "Soltanka".

ORIGIN: Croatia (HR).

DISTRIBUTION: Dalmatia.

PURPOSE: Oil.

Agronomic and commercial considerations

This Dalmatian variety is found in particular on the island of Šolta. The tree is characterised by its spherical, dense canopy. It prefers deep, fertile soils in sheltered areas. It has a very low rooting ability.

It is self-compatible. It is also used as a polliniser for the "Oblica" variety.

In areas conducive to olive cultivation it comes into bearing early. Productivity is high and constant. The fruit is arranged in clusters and it ripens very late. It has a low oil content.

It is very sensitive to low temperatures and drought.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic
LENGTH:	long
WIDTH:	broad
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid-elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro

Oblica

SYNONYMS:	"Bracka", "Debela", "Krupnica", "Mekura", "Nasa Domaca", "Orbula", "Orcula di Lussino", "Orkis", "Orkula", "Pitoma", "Velika".
ORIGIN:	Croatia (HR).
DISTRIBUTION:	Dalmatia.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety is hardy and adapts readily to agriculturally poor soils. It has a high rooting ability. Its start of bearing is intermediate. Flowering is early. The pollen has a low germination capacity. It is self-incompatible, which means that pollinisers such as "Levantinka" or "Drobnica" are needed in the orchards. It has a high pistil abortion rate.

Its productivity is medium and alternate. The fruit ripens early. It is suitable for green or black pickling or oil production and it gives an oil that is highly rated. It has a medium oil content and it is freestone.

It shows good resistance to drought but does not tolerate spring cold. It is susceptible to attacks from olive fly but very resistant to *Cercospora cladosporioides*.

Morphological characters

TREE

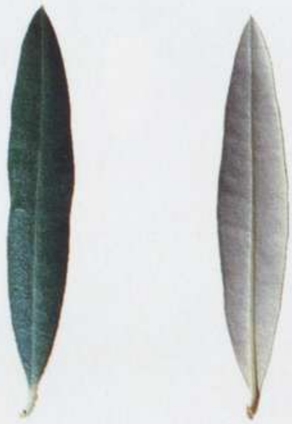
Vigour:	medium
Growth habit:	spreading
Canopy density:	sparse

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat



FRUIT

Weight:	high
Shape:	spherical
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Surface:	rugose
Number of grooves:	high
Termination of apex:	with mucro

CYPRUS

CYPRUS

Olive crop area: 7,600 ha

	1996/97	1997/98	1998/99
Olive oil (t)			
Production	2,000	1,500	2,000
Imports	500	500	500
Exports	0	0	0
Consumption	2,500	2,000	2,500
Table olives (t)			
Production	4,000	3,500	3,500
Imports	500	500	500
Exports	0	0	0
Consumption	4,500	4,000	4,000

Ladoelia

SYNONYMS: "Local".

ORIGIN: Cyprus (CY).

DISTRIBUTION: Solia, Lythrodondas and Parsada.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This ancient cultivar takes its name from its principal use (for oil). Different varieties bearing the same name can be found in many areas of the Mediterranean.

It is considered hardy and it has a medium rooting ability. Its time of flowering is intermediate. It is self-compatible and it has a medium pistil abortion rate. Its productivity is medium and alternate. The fruit is harvested late. It has a medium-to-high oil content, giving a yield of 22-25%. The oil is rated highly for its intense aroma. The fruit may also be used for green or black pickling and it is clingstone.

It is sensitive to verticillium wilt but resistant to olive knot, salinity and drought.

Morphological characters

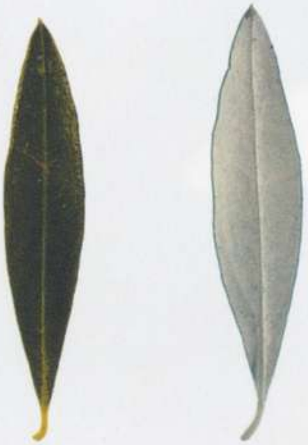
TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	high

LEAF



SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

EGYPT

EGYPT

OLIVE CROP AREA: 35,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	500	1,000	500
Imports	500	500	500
Exports	0	0	0
Consumption	1,000	1,000	1,000
TABLE OLIVES (t)			
Production	25,000	50,000	23,000
Imports	1,000	1,500	2,000
Exports	2,500	12,000	2,500
Consumption	29,000	34,000	28,000

Aggezi Shami

SYNONYMS:	"Azziezy".
ORIGIN:	Egypt (EG).
DISTRIBUTION:	Ismâ'ilîya. It covers some 20% of the country's olive-growing acreage.
PURPOSE:	Table.

Agronomic and commercial considerations

This variety is considered very hardy because it adapts to very harsh environmental conditions for the olive (large amount of solar radiation and little moisture). It has a medium rooting ability and its start of bearing is intermediate. It is self-incompatible and it has a high pistil abortion rate. It displays problems of compatibility with some pollinisers. Productivity is medium and constant.

The fruit is large in size and freestone and it has quite a high flesh-to-stone ratio. The flesh is tasty, firm and resistant to handling. Owing to its low oil content (7-9%) and high sugar content, it is suitable for the production of green or stuffed olives. It is one of the most important table olive varieties in the country.

It is susceptible to olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	short
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	scabrous
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Hamed

SYNONYMS: –

ORIGIN: Egypt (EG).

DISTRIBUTION: Siwa, Sinai (north).

PURPOSE: Table.

Agronomic and commercial considerations

This variety is very hardy. In certain years the trees, which are large in size, may suffer damage through excessive fruit load. It is very ancient in origin and probably comes from the Siwa oasis.

It has a good rooting ability and its start of bearing is intermediate. It is self-compatible and it has a low pistil abortion rate. Flowering is phased, even along the same branch, which may lead to groups of inflorescences with a time-lag of a few weeks between each other on the same tree. Its productivity is high and constant. The fruit is large and quite sensitive to damage during transportation and handling. Freestone, it is used for green pickling.

It is resistant to drought and salinity.

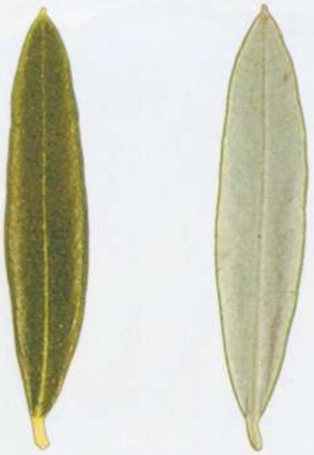
Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	medium



LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	truncate
Nipple:	present
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	scabrous
Number of grooves:	low
Termination of apex:	with mucro

Toffahi

SYNONYMS: "Teffahi".

ORIGIN: Egypt (EG).

DISTRIBUTION: El Gîza, El Faiyûm, Beni Suef. It covers some 5% of the country's olive-growing acreage.

PURPOSE: Table.

Agronomic and commercial considerations

This hardy variety has a medium rooting ability and comes into bearing early. It is self-compatible and it has a low pistil abortion rate. Flowering and harvesting are early. Its productivity is medium and constant. Freestone, it is used primarily for green pickling. It is sensitive to damage during transportation and handling. Although it changes colour early, it is not suitable for black pickling because the fruit has a tendency to become oversoft and to ferment during the process. The fruit is large and it has a low oil content (5-7%).

It is sensitive to olive fly.

Morphological characters

TREE

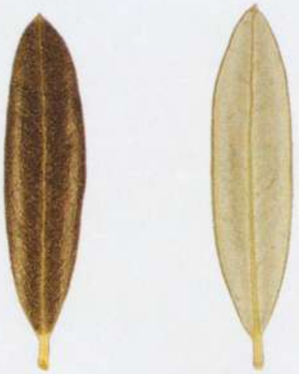
Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic
Length:	short
Width:	medium
Longitudinal curvature of the blade:	flat



FRUIT

Weight:	very high
Shape:	spherical
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	scabrous
Number of grooves:	medium
Termination of apex:	with mucro

FRANCE

FRANCE

OLIVE CROP AREA: 20,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	2,500	2,700	3,400
Imports*	1,400	100	500
Exports*	1,100	1,100	1,000
Consumption	58,800	75,600	78,800
TABLE OLIVES (t)			
Production	2,000	2,000	2,000
Imports*	27,000	24,000	26,000
Exports*	1,600	1,100	1,300
Consumption	30,800	33,700	35,600

* These figures refer solely to trade with countries outside the European Community

Aglandau

SYNONYMS: "Beruguette", "Blanquette", "Plant d'Aix", "Verdale".

ORIGIN: France (FR).

DISTRIBUTION: Alpes-de-Haute-Provence (95% of olive acreage); Vaucluse (95% of olive acreage); and Bouches-du-Rhône (15% of olive acreage).

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This hardy variety has a medium rooting ability and an intermediate start of bearing. The time of flowering is also intermediate and it is self-compatible. Productivity is medium and alternate. It gives a top-quality oil that keeps for a long time.

It tends to alternate bearing although this can be controlled through suitable pruning. It has a medium oil content and it is clingstone.

It is resistant to verticillium wilt and moderately resistant to olive leaf spot but sensitive to olive scale. It is resistant to cold and drought.

Morphological characters

TREE

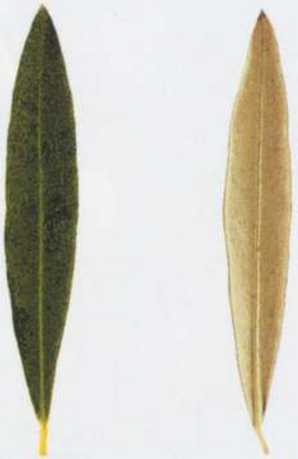
VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	lanceolate
LENGTH:	medium
WIDTH:	narrow
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic



FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Bouteillan

SYNONYMS:	"Plant de Salernes", "Redounan".
ORIGIN:	France (FR).
DISTRIBUTION:	Var; and Languedoc, where it is well adapted.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is hardy. It requires light but frequent pruning. It has an early start of bearing and its productivity is high and constant. It is cultivated mainly in irrigated areas. It grows very quickly and gives a high oil yield. Its time of ripening is intermediate. The fruit may vary considerably in size and it is clingstone.

It shows good resistance to cold but it is sensitive to attacks from olive fly, olive scale and olive moth. It is moderately resistant to olive leaf spot and drought.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	high

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
SURFACE:	scabrous
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Grossane

SYNONYMS: "Groussan".

ORIGIN: France (FR).

DISTRIBUTION: Bouches-du-Rhône (Les Baux valley).

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is hardy and it has a medium-to-low rooting ability. Owing to the difficulty in rooting it is propagated by grafting. It has an intermediate start of bearing but, when irrigated, its grows and comes into bearing earlier.

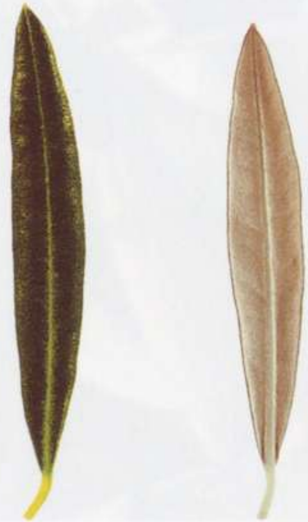
It has an intermediate time of flowering and ripening. It has a medium pistil abortion rate and a medium pollen production rate. Productivity is medium and constant. Freestone, it is used primarily for making sweet-tasting black olives. It gives a low yield (16%) of oil which is very fragrant but does not keep well.

It is resistant to cold, drought and verticillium wilt and moderately resistant to olive leaf spot. It is sensitive to olive scale, olive moth and olive fly.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	medium



INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	spherical
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Lucques

SYNONYMS: "Lucquoise".

ORIGIN: France (FR).

DISTRIBUTION: Languedoc (Hérault, Aude) where it covers 60% of the olive-growing acreage.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is not very hardy and it is sensitive to cold. It is very demanding as regards soil characteristics and cultural practices, particularly irrigation.

It has an intermediate start of bearing while flowering is very early. It is and andro-sterile and has a medium pistil abortion rate. Productivity is medium and alternate. Harvesting is early. The fruit is a good size and appreciated for its organoleptic characteristics. It has a low oil yield. Freestone, it is used exclusively for making green olives and it is sensitive to processing.

It is sensitive to olive scale, olive fly and verticillium wilt, whereas it is moderately resistant to olive leaf spot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

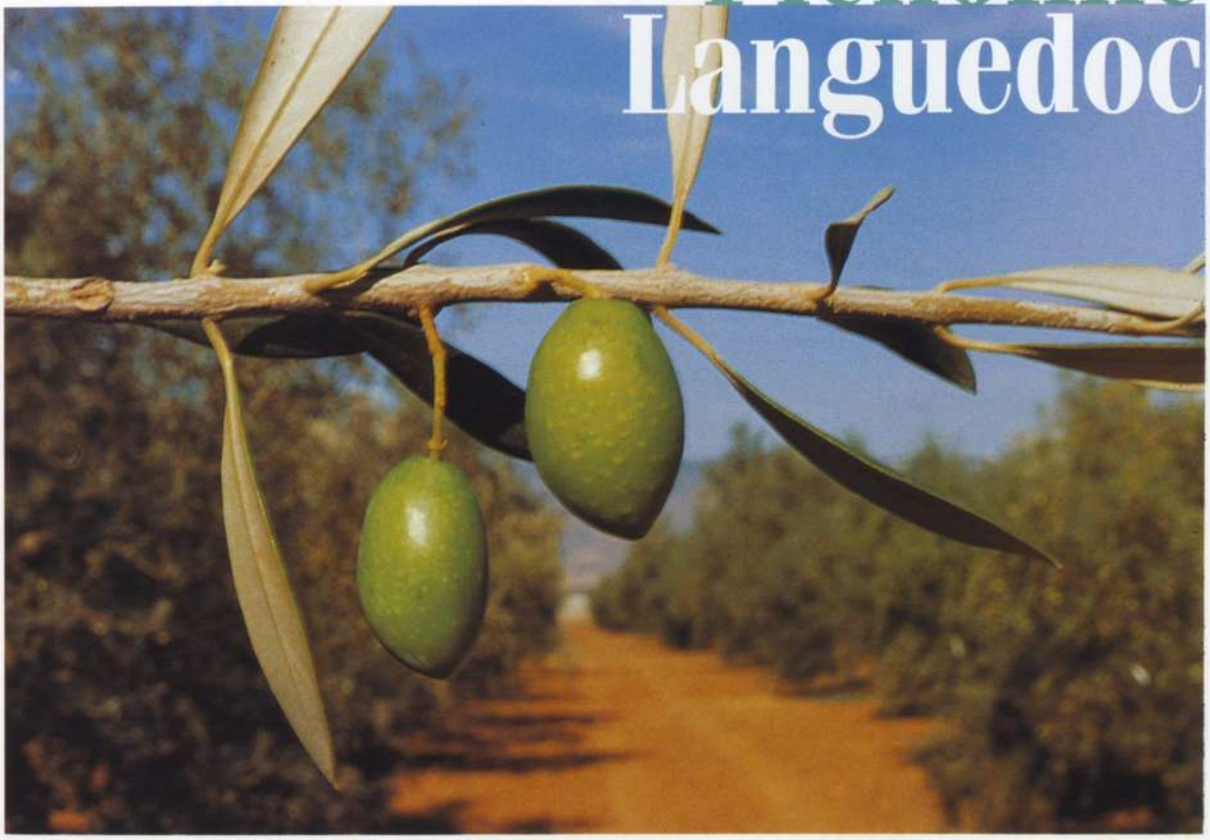
FRUIT

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	low
TERMINATION OF APEX:	with mucro

Picholine Languedoc



SYNONYMS: "Collias", "Coyas", "Olive de Nîmes".

ORIGIN: France (FR).

DISTRIBUTION: Gard, Bouches-du-Rhône, Var, Hérault, Corsica, Aude, Ardèche, Vaucluse.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is hardy and has the ability to adapt to different environments although it is quite demanding as regards certain cultural practices. It is the main French variety. It has a medium rooting ability.

It comes into bearing early. When irrigated, productivity is high and constant. Its time of flowering is intermediate and the pollen has a high germination capacity. Ripening is late.

It is used primarily for making green table olives. It gives top-quality oil, although it is difficult to extract. It gives a medium oil yield and it is freestone.

It is resistant to olive leaf spot and moderately tolerant of verticillium wilt, cold and drought.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Salonenque

SYNONYMS: "Plant de Salon".

ORIGIN: France (FR).

DISTRIBUTION: Bouches-du-Rhône (where it accounts for 66% of olive-growing acreage) and Var.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is very hardy and adapts to the poorest soils although it does respond well to cultural care. It has a low rooting ability and an intermediate start of bearing. It flowers early and the fruit ripens late. It is self-incompatible and it has a low pistil abortion rate. Productivity is high and constant.

The fruit is harvested mid-season when it has not yet fully changed colour. It gives a medium-to-high oil yield. Freestone, it is cultivated primarily for making split green olives.

It is resistant to verticillium wilt and moderately resistant to cold and drought but sensitive to the Mistral. It is resistant to olive leaf spot and shows little sensitivity to attacks from the olive fly.

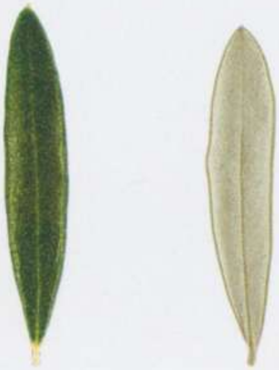
Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	high



LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	short
WIDTH:	narrow
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro or with small mucro

Tanche

SYNONYMS: "Olive de Nyons".

ORIGIN: France (FR).

DISTRIBUTION: Southern Drôme, where it covers about 95% of the olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is not very hardy and requires suitable cultural care and loose soils. It comes into bearing late while its time of flowering is intermediate. It is partially self-incompatible and it has a high pistil abortion rate. The "Cayon" and "Rougeon" varieties are used for pollination purposes. Productivity is medium and alternate.

It ripens late and harvesting is done in one run. Freestone, the fruit is unevenly sized but highly rated for black table olives and for its high yield of top-quality oil. Both the oil and the olives are covered by the "Nyons" registered designation of origin.

It is moderately resistant to cold and drought but shows little tolerance of wind. It shows little resistance to verticillium wilt and it is sensitive to olive leaf spot and olive fly.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	spherical
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

GREECE

GREECE

Olive crop area: 729,000 ha

	1996/97	1997/98	1998/99
Olive oil (t)			
Production	390,000	375,000	473,000
Imports*	0	0	0
Exports*	5,200	8,000	6,000
Consumption	240,000	240,000	245,000
Table olives (t)			
Production	60,000	85,000	85,000
Imports*	0	0	0
Exports*	20,000	33,000	35,000
Consumption	20,000	20,000	22,000

* These figures refer solely to trade with countries outside the European Community

Adramitini

SYNONYMS: "Avaliotiki", "Fragolia", "Mitilinia", "Peraiki".

ORIGIN: Greece (GR).

DISTRIBUTION: Lésvos where it covers about 20% of the olive-growing acreage; Khiós and Évvoia.

PURPOSE: Oil.

Agronomic and commercial considerations

This hardy variety has a medium rooting ability and an intermediate start of bearing. Its time of flowering and harvesting are also intermediate.

Productivity is medium and alternate. It gives top-quality oil. The fruit has a medium removal force and a high oil content and it is freestone.

It is sensitive to attacks from olive fly and to olive knot and moderately resistant to cold.

Morphological characters

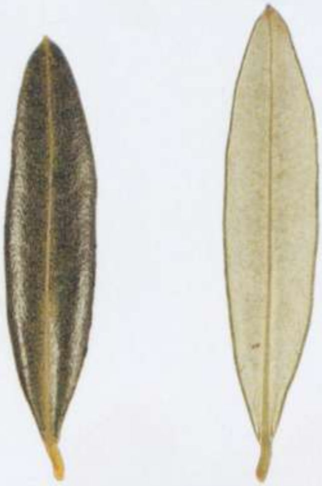
TREE

VIGOUR: medium
GROWTH HABIT: spreading
CANOPY DENSITY: medium

INFLORESCENCE

LENGTH: medium
NUMBER OF FLOWERS: medium

LEAF



SHAPE: elliptic
LENGTH: medium
WIDTH: medium
LONGITUDINAL CURVATURE OF THE BLADE: epinastic

FRUIT

WEIGHT: medium
SHAPE: ovoid
SYMMETRY: symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER: central
APEX: rounded
BASE: truncate
NIPPLE: absent
LENTICELS: many and small

ENDOCARP

WEIGHT: high
SHAPE: elliptic
SYMMETRY: slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER: central
APEX: rounded-pointed
BASE: rounded
SURFACE: rugose
NUMBER OF GROOVES: medium
TERMINATION OF APEX: without mucro or with small mucro

Amigdalolia

SYNONYMS: "Ispaniki", "Kouromita", "Stravomita".

ORIGIN: Greece (GR).

DISTRIBUTION: Attiki and Fókida.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is of medium hardiness, and it is distributed in quite a limited area. It has a medium rooting ability. It is used mainly for green olives. It gives a medium oil yield.

It has an intermediate start of bearing. Its time of flowering and harvesting are also intermediate. It has a medium pistil abortion rate. Productivity is medium and alternate. The fruit has a medium removal force and it is clingstone.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	medium-high

LEAF

Shape:	elliptic-lanceolate
Length:	long
Width:	broad
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	very high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Chalkidiki

SYNONYMS: "Chodrolia Chalkidikis".

ORIGIN: Greece (GR).

DISTRIBUTION: Khalkidhiki.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is of medium hardiness. It has a medium rooting ability, an intermediate start of bearing and a medium pistil abortion rate.

The fruit is harvested early and it has a medium removal force. It does not turn completely black when it reaches maturity. It is used for green pickling and it gives a medium oil yield. Productivity is medium and alternate. It is freestone.

It is resistant to drought and cold.

Morphological characters

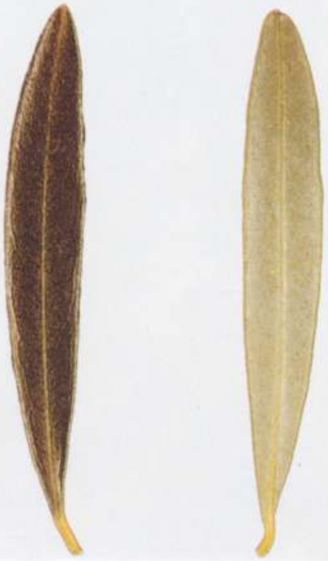
TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF



SHAPE:	lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	very high
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Kalamon

SYNONYMS: "Aetonycholia", "Chondrolia", "Kalamata".

ORIGIN: Greece (GR).

DISTRIBUTION: Messinía, Lakonía, Lamía. It covers about 15-20% of the country's table olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is of medium hardiness. It has a medium rooting ability and an intermediate start of bearing.

The fruit ripens late and it is harvested when it has undergone full colour change. Although dual-purpose, it is grown chiefly for Greek-style black olives. Productivity is high and alternate. The fruit stands up well to preparation and handling and can be processed in different ways, although always as black olives because it retains its colour well. It has a high flesh-to-stone ratio and it is freestone.

It gives a medium yield of excellent quality oil.

It is moderately resistant to cold and sensitive to excessively hot climates. It is moderately susceptible to olive leaf spot and verticillium wilt but resistant to olive knot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	long
Width:	broad
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	without mucro

Konservolia

SYNONYMS:	"Amphissis", "Milolia", "Patrini", "Piliou", "Salonitiki", "Voliotiki".
ORIGIN:	Greece (GR).
DISTRIBUTION:	Central Greece: Amfissa, Volos, Évvoia. It covers 70-85% of the country's table olive growing acreage.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety is of medium hardiness and it has a medium rooting ability. When irrigated, it grows quickly and comes into bearing after three to four years. It has a high pistil abortion rate. Its time of flowering is intermediate while the time of ripening is intermediate-late. Productivity is high and alternate. Harvest date depends on the end use of the fruit.

Its ability to adapt to different environmental conditions means that it can be cultivated from sea level up to an altitude of 500-600 metres, provided rainfall is not less than 500 mm/year. It is used mainly for preparing green table olives. It is also used for black olives and oil extraction. The fruit has a medium content of good quality oil. The flesh of the fruit is firm and it is therefore resistant to damage during transportation and handling, which is why it is intended for black pickling. It is freestone.

It is resistant to cold and to olive knot whereas it is sensitive to verticillium wilt and moderately sensitive to dry climates.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	broad
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	scabrous
Number of grooves:	medium
Termination of apex:	with mucro

Koroneiki

SYNONYMS: "Koroni", "Kritikia", "Ladolia", "Psylolia".

ORIGIN: Greece (GR).

DISTRIBUTION: Peloponnese, Zákinthos, Crete, Samos. It covers about 50-60% of the country's olive growing acreage.

PURPOSE: Oil.

Agronomic and commercial considerations

This is the chief oil variety of Greece. It has a medium rooting ability. It comes into bearing early and it flowers early. It produces abundant pollen. Its time of ripening is early to intermediate. Productivity is high and constant. The oil yield is high and the oil is rated highly. It has a very high content of oleic acid and a very high stability.

It is resistant to drought but does not tolerate cold; for this reason, in Crete at altitudes of more than 400-500 metres above sea level or in exposed sites it is replaced by the "Mastoidis" variety, which is also used as a polliniser.

It is resistant to olive leaf spot and moderately resistant to verticillium wilt but sensitive to olive knot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	short
WIDTH:	narrow
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	low
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Mastoidis

SYNONYMS: "Athinolia", "Tsounati".

ORIGIN: Greece (GR).

DISTRIBUTION: It accounts for 15-20% of the country's olive-growing acreage. It has been reported as being cultivated from Kérkira (Corfu) to Attiki, but nowadays it is most widespread in the Peloponnese and Crete.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety gets its name from the characteristic breast-like shape of the fruit. In all probability, in the past the same denomination was given to different populations owing to the similar shape and size of their fruit.

It is considered hardy and can be cultivated up to 1000 metres above sea level. It is cultivated on the highest, harshest side of Crete in combination with the "Koroneiki" variety, for which it is considered a good polliniser. It has a medium rooting ability. Its start of bearing and time of flowering are intermediate. Productivity is medium and alternate. It has a high oil yield and it is freestone. It is used for pickling black olives and producing good quality oil.

It is resistant to cold and moderately tolerant of dry climates. In addition, it is resistant to olive knot but susceptible to olive leaf spot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Megaritiki

SYNONYMS:	"Ladolia", "Perahortiki".
ORIGIN:	Greece (GR).
DISTRIBUTION:	Attiki, Voiotía and the Peloponnese.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This hardy variety has a medium rooting ability and an intermediate start of bearing. Its time of flowering and time of ripening are intermediate. It has a low pistil abortion rate. Its productivity is medium and alternate. It is considered a population-variety in which two strains can be distinguished according to fruit size: the smaller-fruited sub-Micra and the larger-fruited sub-Megala, although the name refers to the second one.

Its clingstone fruit is used for green or black pickling and oil extraction, giving a medium-high oil yield. The oil is good quality.

It is resistant to dry climates and moderately tolerant of cold. It is also resistant to olive knot but moderately sensitive to verticillium wilt and olive leaf spot.

Morphological characters

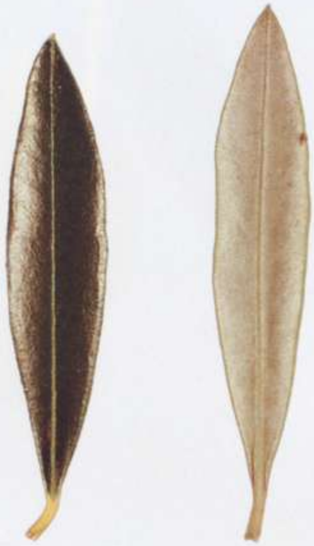
TREE

VIGOUR:	medium
GROWTH HABIT:	drooping
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF



SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	low
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	low
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	without mucro

Valanolia

SYNONYMS: "Kolovi", "Melolia" and "Mytilinia" in Greece; "Çakır" in Turkey.

ORIGIN: Greece (GR).

DISTRIBUTION: Lésvos, Khiós and Skíros. It extends over 70% of the olive growing acreage of Lésvos.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is of medium hardiness. It has a medium rooting ability and an intermediate start of bearing.

Its time of flowering is intermediate and it has a medium pistil abortion rate. Ripening is intermediate-late. Productivity is medium and alternate. The fruit is used for oil extraction. It is clingstone and it has a medium content of excellent quality oil.

It is moderately tolerant of cold and drought, moderately resistant to verticillium wilt and resistant to olive knot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	low
TERMINATION OF APEX:	with mucro

ISRAEL

ISRAEL

Olive crop area: 18,750 ha

	1996/97	1997/98	1998/99
Olive oil (t)			
Production	5,500	3,000	4,000
Imports	2,000	2,500	3,000
Exports	0	0	0
Consumption	7,500	6,500	6,500
Table olives (t)			
Production	18,000	12,500	15,500
Imports	0	1,500	1,500
Exports	2,000	1,500	1,000
Consumption	16,000	13,500	16,000

Barnea

SYNONYMS: "K18".

ORIGIN: Israeli breeding programme (IL).

DISTRIBUTION: Galilee in particular, along the coastal and southern plains. It accounts for about 10% of the country's olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This newly bred cultivar was isolated from an undetermined number of seedlings. It is also known as "K18", which was its original number in the breeding plot. It is the predominant cultivar in new irrigated orchards in Israel because of its high, constant productivity and its adaptability to mechanical harvesting.

It was bred for oil production but it can also be used for green or black table olives after suitable fruit thinning; the black olives it gives are highly rated. It gives good quality oil and a medium yield at the mill. It is freestone.

It is a moderately hardy variety and it has a good rooting ability. When irrigated, plants grown on their own roots can come into bearing from the third year, which is early. Its time of flowering is intermediate. It is partially self-compatible and it has a medium pistil abortion rate. It has a medium pollen production. Ripening is quite early when the fruit is intended for green pickling and intermediate when it is for black pickling. It has a very high fruiting potential, but it is very demanding as regards cultural care and does not appear to respond well to severe pruning. When it is not irrigated, it alternates heavily.

One of its most striking characters is its apparent tolerance of olive leaf spot.

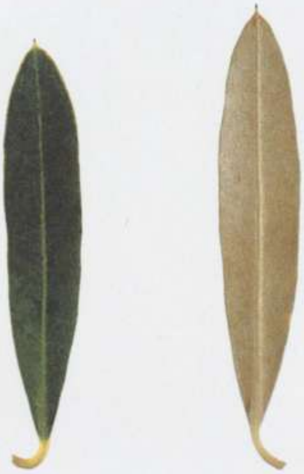
Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	sparse

INFLORESCENCE

Length:	long
Number of flowers:	medium



LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	present
Lenticels:	many and large

ENDOCARP

Weight:	medium
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	without mucro

Kadesh

SYNONYMS: "K12".

ORIGIN: Israeli breeding programme (IL).

DISTRIBUTION: Along the coastal plain and in hot continental areas of Israel.

PURPOSE: Table.

Agronomic and commercial considerations

This cultivar has been obtained in a breeding programme. It is also known as "K12", its original breeding number. It has been introduced in hot areas and is only cultivated under irrigation. It is used solely for table olives and the fruit has a high sugar content.

It comes into bearing early and its productivity is high and constant; it needs annual pruning to avoid a significant drop in bearing. When production is very high, fruit thinning is advisable to ensure regular fruit size and to avoid tree stress from over-cropping. In optimal agricultural conditions the phenomenon of alternate bearing is of little significance. The fruit is harvested green for a special low-fat pickled product with not more than 3% oil. When mature, the oil content may reach a maximum of 9%. It is freestone.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	epinastic

FRUIT

Weight:	high
Shape:	spherical-ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Merhavia

SYNONYMS: –

ORIGIN: Village of Merhavia in the central valley of Israel (IL).

DISTRIBUTION: Particularly in the hot continental valley.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is probably of Italian origin. It was found in the village of Merhavia in the central valley of Israel from which it gets its name. It is only grown under irrigation. It is widespread in the hot central valley and the coastal plain. The acreage cropped has declined drastically in the last 30 years because it is inferior in quality to the varieties that have spread through the country in recent years.

It is of medium hardiness and it has a medium rooting ability. Its start of bearing and its time of flowering are intermediate. It is partially self-compatible and it has a medium pistil abortion rate.

The fruit is used exclusively for pickling as Spanish-style green olives. It ripens very early and it is the first to be harvested. Its oil content is very low (9%). When fully mature, the fruit is very soft. It has a medium removal force and it needs thinning to ensure regular fruit size. Alternance is weak and can be easily controlled through agricultural practices. Productivity is high and constant but the quality of the product is medium to low. It is clingstone.

The lack of uniformity of the fruit is the major commercial drawback of this variety. It is resistant to olive leaf spot and susceptible to olive fly.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

ITALY

ITALY

OLIVE CROP AREA: 1,147,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	370,000	620,000	397,000
Imports*	106,600	89,300	140,000
Exports*	129,500	123,500	140,000
Consumption	675,000	698,000	705,000
TABLE OLIVES (t)			
Production	55,300	80,000	45,000
Imports*	7,500	3,200	5,000
Exports*	1,300	1,100	1,000
Consumption	112,000	130,000	120,000

* These figures refer solely to trade with countries outside the European Community

Ascolana Tenera

SYNONYMS:	"Oliva dolce".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Le Marche and central Italy.
PURPOSE:	Table.

Agronomic and commercial considerations

This variety is very demanding as regards environmental conditions and prefers cool, loose, calcareous soils.

It has an early start of bearing. Fruiting is high only when agronomic conditions are optimal. It flowers late and it usually has a high pistil abortion rate. It is self-incompatibile; reported pollinisers are "Santa Caterina", "Itrana", "Rosciola", "Morchiaio" and "Giarraffa".

Productivity is medium and constant. Ripening is early. Because of the firmness of the flesh it can be used for green olives in brine. It has a flesh-to-stone ratio of 6 and it is freestone.

It is particularly tolerant of cold and resistant to olive leaf spot, olive knot and wood rot. Conversely, it is sensitive to olive fly.

Some clones are available.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	helicoid

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and large

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
SURFACE:	scabrous
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Biancolilla

SYNONYMS: "Bianca", "Bianchetta", "Bianchetto", "Biancolella", "Biancolina", "Biancuccia", "Bianculidda", "Biancuzza", "Bruscarinu", "Gaetana", "Giarraffa", "Imperialidda", "Janculitta", "Jancuzza", "Marmorina", "Marmurina", "Napoletana", "Niccittisa", "Nocellara", "Nuciddara", "Ogliara", "Pruscarina", "Rizza", "Signura", "Siracusana", "Ugliara".

ORIGIN: Italy (IT).

DISTRIBUTION: Central-eastern Sicily.

PURPOSE: Oil.

Agronomic and commercial considerations

High hill country provides the ideal growing environment for this variety, which is able to produce good crops even on soils with limited moisture supply.

It has a high rooting ability. Its start of bearing is intermediate.

Its time of flowering is also intermediate. The flowers, which have a high pistil abortion rate, produce abundant fertile pollen. It is partially self-compatible and benefits from pollinisers such as "Moresca", "Zaituna", "Tonda Iblea" and "Ogliarola messinese". Productivity is high and alternate. It has a high fruit set and it is usual for there to be three to four drupes per inflorescence. The flesh of the olives is not firm. The fruit is freestone and gives a low yield of oil that is a characteristic light colour.

This variety tolerates cold and olive leaf spot but it is sensitive to olive fly and olive knot. Several biotopes have been reported in the scientific literature.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
NIPPLE:	present
LENTICELS:	few and large

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Bosana

SYNONYMS:	"Algherese", "Aligaresa", "Bosano", "Bosarca", "Bosinca", "Olia de Ozzu", "Olia terza", "Olieddu", "Oliva bianca", "Palma", "Sassarese", "Sivigliana da olio", "Tondo", "Tondo di Sassari".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Sardinia.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is productive and adapts easily. Its rooting ability is very low.

It comes into bearing late. Its time of flowering is intermediate and the flowers are inserted directly on the main rachis. Partially self-compatible, its crop production is enhanced by the presence of suitable pollinisers such as "Pizz'e carroga", "Olia niedda", "Cariasina di Dorgali" and "Tondo di Cagliari".

Productivity is high and alternate. Colour change occurs from the base of the fruit to the apex. Ripening is late and phased. In some years crops may also be used for black table olives. Oil yield is high.

Some clones are reported in the scientific literature.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	broad
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central-towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Canino

SYNONYMS: "Caninese", "Montignoso", "Oliva canina", "Olivastro canino", "Olivella".

ORIGIN: Italy (IT).

DISTRIBUTION: Lazio.

PURPOSE: Oil.

Agronomic and commercial considerations

This hardy cultivar adapts readily and has the ability to send out numerous shoots. It has a good rooting ability and an intermediate start of bearing.

The flowers have a low pistil abortion rate. As it is self-incompatible it needs suitable pollinisers such as "Razzo", "Frantoio", "Crognolo", "Fosco", "Grossolana", "Olivone", "Palmarino", "Leccino", "Raja", "Maurino" and "Moraiolo".

Ripening is late and phased. The fruit has a very high removal force and a medium oil content. Productivity is high and alternate.

It is resistant to olive fly, olive knot and cold but it is sensitive to olive leaf spot.

Some clones of this variety have been identified.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	low
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Carolea

SYNONYMS:	"Becco di corvo", "Borgese", "Calabrese", "Camignana", "Camignaria", "Caroleo", "Catanzarese", "Colarè", "Convitè", "Corbarica Coriolese", "Cortalese", "Cumignana", "Marinotto", "Muso di corvo", "Nicastrese", "Oliva dolce", "Olivo di Calabria", "Olivo di Sorta", "Olivona", "Pizzu di corvu", "Squillaciota", "Verdella".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Calabria.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety adapts easily and can be cultivated up to an altitude of 800 m.

It has a high rooting ability.

It comes into bearing early. It is self-incompatible and therefore needs suitable pollinisers such as "Nocellara messinese", "Cassanese", "Pidicuddara", "Picholine" and "Itrana". It flowers early and the pollen has a high germination ability.

Productivity is high and constant. Fruit ripening is phased. The clingstone fruit has a medium oil content and a flesh-to-stone ratio of 4.5. It is used for green or black pickling or for oil production.

It is particularly resistant to low temperatures whereas it is sensitive to olive leaf spot and olive fly and very susceptible to *Cercospora cladosporioides*.

Some clones of this variety have been identified.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	hyponastic

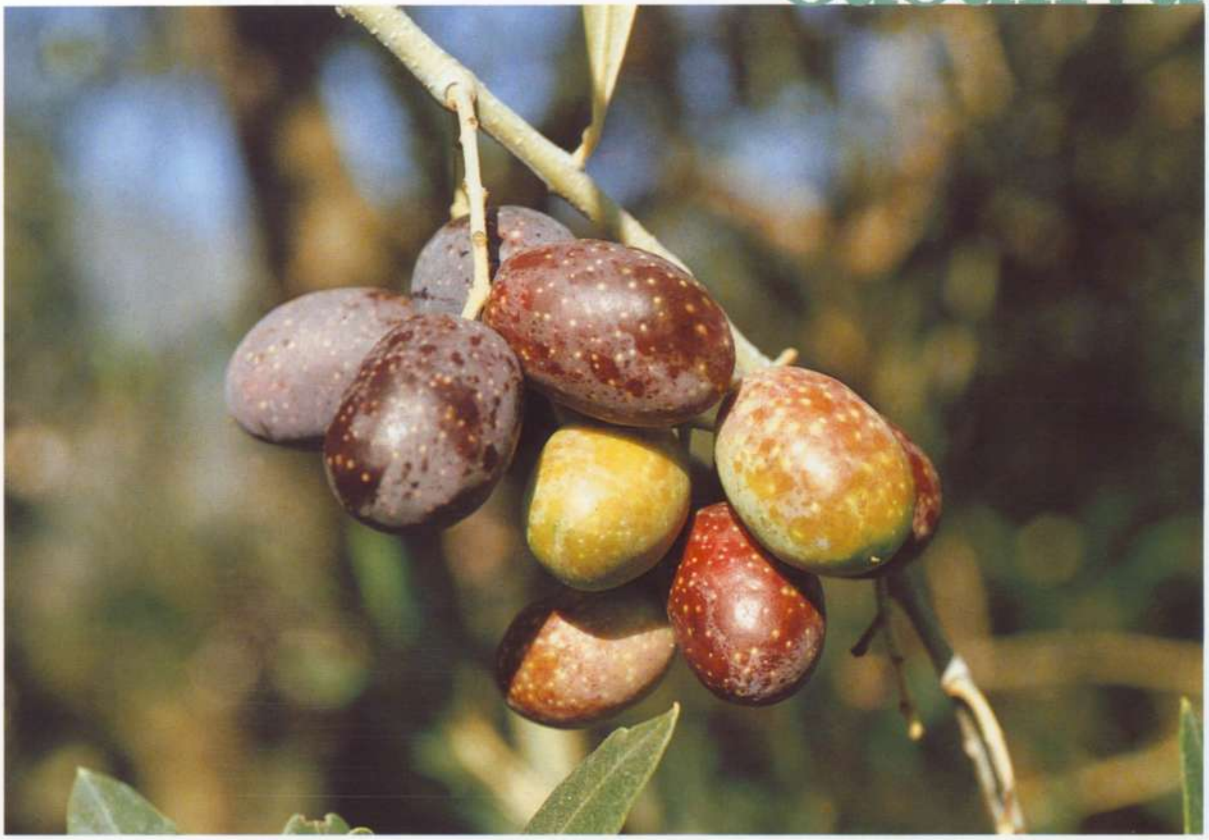
FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	present
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Casaliva



SYNONYMS:	"Bagoler", "Calma", "Casali", "Casalin", "Casalivo", "Drezzeri", "Drissar", "Drizar", "Drizer", "Olivo casalino", "Olivo gentile", "Zentil".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Veneto.
PURPOSE:	Oil.

Agronomic and commercial considerations

This vigorous variety has a high, constant productivity and an intermediate start of bearing.

It is self-compatible but benefits from pollinisers such as "Trepp", "Rossanello" and "Grignan". In turn it can also be an optimal polliniser. It flowers early and the flowers have a low pistil abortion rate.

Ripening is late and phased. The fruit has a high removal force and a medium oil content. The oil produced in the Lake Garda area is from this variety.

It is sensitive to olive leaf spot, olive knot and olive fly as well as cold.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and large

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic-elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Cassanese

SYNONYMS: "Cassanisa", "Grossa di Cassano", "Precoce di Cassano".

ORIGIN: Italy (IT).

DISTRIBUTION: Calabria.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is vigorous and fast growing, and it has a high rooting ability.

It comes into bearing early. Its time of flowering is intermediate and the flowers have a high pistil abortion rate. It is self-incompatible and its pollinisers are "Tondina", "Corniola" and "Santomauro". Productivity is high and constant. The fruit ripens rather late and may be used for black pickling; it has a flesh-to-stone ratio of 7 and it is clingstone. Its oil content is low.

It is particularly tolerant of olive knot and olive leaf spot but sensitive to cold and attacks from olive fly.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	helicoid

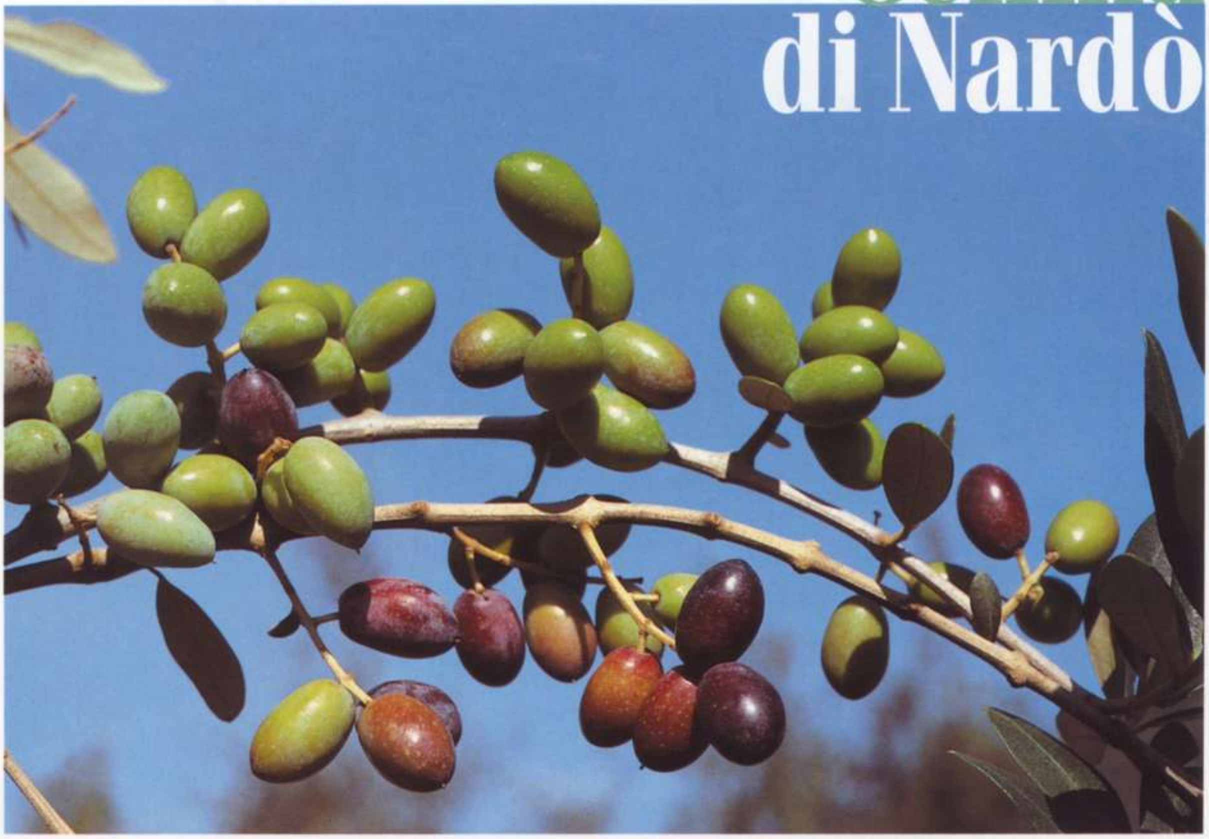
FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	truncate
Surface:	scabrous
Number of grooves:	medium
Termination of apex:	without mucro

Cellina di Nardò



SYNONYMS: "Asciulo", "Cafaredda", "Cafarella", "Cascia", "Cascioulo", "Cellina femmina", "Cellina inchiastra", "Cellina leccese", "Cellina legittima", "Cellina mascolina", "Cellina salentina", "Cellina tarantina", "Cellina termetara", "Gasciola", "Leccese", "Leccina", "Morella", "Muredda", "Oliva di Lecce", "Oliva di Nardò", "Saracena", "Saracina", "Scurranese", "Vosciola".

ORIGIN: Italy (IT).

DISTRIBUTION: Puglia.

PURPOSE: Oil.

Agronomic and commercial considerations

This vigorous, hardy variety has rather slow vegetative growth and an intermediate start of bearing.

It flowers early and the flowers have a high pistil abortion rate. Partially self-compatible, it is also used as a polliniser. Its productivity is high and constant. Fruit ripening is phased and the olives have a high removal force. It has a low oil content and the oil is hard to extract when the fruit is not fully mature.

It is particularly resistant to olive knot, olive fly, sooty mould and olive leaf spot as well as to cold.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	low
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Coratina

SYNONYMS:	"Cima di Corato", "Coratese", "La Valente", "Olivo a confetti", "Olivo a grappoli", "Olivo a racemi", "Olivo a racimolo", "Olivo a raciuoppe", "Racema", "Racemo", "Racemo di Corato", "Racioppa", "Racioppa di Corato".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Puglia.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety adapts easily to different olive-growing environments and starts bearing very early. Its rooting ability is high.

The flowers have a low pistil abortion rate. The inflorescences are often leafy. In its area of origin the "Cellina di Nardò" is used as a polliniser. Its productivity is high and constant. The fruit ripens late and varies a lot in size. Some years it is also suitable for green olives in brine. Oil yield is high and the oil has a very high polyphenol content.

It is particularly tolerant of cold and susceptible to sooty mould and wood rot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Cucco

SYNONYMS: "Chietina", "Coglioni di gallo", "Francavillese", "Francavinese", "Lancianese", "Oliva del mezzadro", "Oliva tonda", "Olivoce", "Olivona", "Olivone", "Testicolo di gallo".

ORIGIN: Italy (IT).

DISTRIBUTION: Abruzzi, Molise.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This is a hardy, very vigorous variety with a low rooting ability.

It has a late start of bearing. It flowers early and produces little pollen. It is self-incompatible and the flowers have a high pistil abortion rate. It is incompatible with "Dritta", "Intosso", "Castiglionese" and "Jannaro".

It has a high, alternate productivity. It ripens early and fruit drop is accentuated by its low removal force.

The fruit is used for natural green olives or Greek-style black olives and has a flesh-to-stone ratio of 4. It has a medium oil content and it is freestone.

It is resistant to cold and susceptible to olive knot and wood rot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	lanceolate
Length:	medium
Width:	narrow
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	scabrous
Number of grooves:	medium
Termination of apex:	with mucro

Dolce Agogia

SYNONYMS: "Agogio", "Gogio", "Nerella", "Oliva Agogia", "Oliva da conciare", "Oliva dolce", "Olivella", "Olivo Agogio", "Raia".

ORIGIN: Italy (IT).

DISTRIBUTION: Umbria.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety adapts well to a variety of climatic and soil conditions. Its fruiting shoots have an erect growth habit and the apical bud may also develop into a flower. It has a high rooting ability.

It comes into bearing early. It is self-incompatible. It flowers late and the inflorescences often have supernumerary flowers. It has a medium pistil abortion rate and fruit set is sometimes limited. Productivity is medium and alternate. The fruit ripens early, has a high removal force, and is sensitive to attacks from olive fly. It has a medium oil content and a flesh-to-stone ratio of 4.7. The fruit is also used for dehydrated black olives.

In the scientific literature it is reported to be particularly tolerant of olive leaf spot and olive knot. It is sensitive to drought and shows marked resistance to cold.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	rounded
SURFACE:	scabrous
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Dritta

SYNONYMS: "Dritta di Loreto", "Dritta di Moscufo", "Lordana", "Loretana", "Moscufese", "Moscufo".

ORIGIN: Italy (IT).

DISTRIBUTION: Abruzzi.

PURPOSE: Oil.

Agronomic and commercial considerations

This hardy variety is prized for its high, constant productivity. It has an early start of bearing. It flowers early and the flowers have a low pistil abortion rate. It is self-incompatible; reported pollinisers are "Gentile di Chieti", "Leccino", "Moraiolo", "Precoce" and "Nebbio".

The fruit ripens early and is suited to mechanical harvesting because of its low removal force. It has a medium oil content.

It is particularly tolerant of olive knot and resistant to cold but susceptible to wood rot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	rounded
SURFACE:	smooth
NUMBER OF GROOVES:	low
TERMINATION OF APEX:	with mucro

Frantoio

SYNONYMS: "Bresa fina", "Comune", "Correggiolo", "Crognolo", "Frantoiano", "Gentile", "Infrantoio", "Laurino", "Nostrato", "Oliva lunga", "Pendaglio", "Pignatello", "Raggio", "Raggiolo", "Rajo", "Razza", "Razzo", "Solciaro", "Stringona".

ORIGIN: Italy (IT).

DISTRIBUTION: Central Italy and numerous olive-growing countries.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety has a high, constant productivity and is also prized for its adaptability. There are numerous ecotypes similar to it.

It has a high rooting ability and an early start of bearing. Its time of flowering is intermediate and the flowers have a low pistil abortion rate. It is self-compatible but its productivity rises when suitable pollinisers are present.

Fruit ripening is late and phased. It has a medium oil content. In Tuscany it is rated highly for the production of particularly fruity oils that are stable over time.

It is susceptible to olive leaf spot, olive knot and olive fly and it is sensitive to cold.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	drooping
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Giarraffa

SYNONYMS: "Becco di corvo", "Cacata di chioccia", "Cefalutana", "Ciocca", "Giardara", "Giarrafara", "Giarraffella", "Giarraffu mammona", "Pizzu di corvu", "Raffa", "Raffu".

ORIGIN: Italy (IT).

DISTRIBUTION: Central and north-western Sicily.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is very demanding as regards agronomic conditions. It has a good rooting ability.

It comes into bearing early. Flowering is early and phased and the flowers have a high pistil abortion rate. It is partially self-compatible and benefits from pollinisers like "Tonda Iblea", "Nocellara Etnea", "Nocellara del Belice, "Passulunara" and "Ascolana Tenera". Itcan be used, in turn, as a polliniser for orchards growing "Nocellara del Belice" and "Ascolana Tenera".

Productivity is low and alternate. The fruit ripens early and is used for green or black pickling. It has a medium oil content. It is freestone and has a flesh-to-stone ratio of 5.6.

It is susceptible to olive leaf spot, olive knot and limited soil moisture. Conversely, it is very resistant to *Cercospora cladosporioides*.

Morphological characters

TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	sparse

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	lanceolate
Length:	long
Width:	narrow
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	very high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central or towards base
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards base
Apex:	pointed
Base:	pointed
Surface:	scabrous
Number of grooves:	high
Termination of apex:	with mucro

Grignan

SYNONYMS: "Bersan", "Gargnà", "Gargnan", "Gargnano", "Negrar".

ORIGIN: Italy (IT).

DISTRIBUTION: Veneto and Lombardy.

PURPOSE: Oil.

Agronomic and commercial considerations

This very hardy variety adapts readily to the olive-growing areas of northern Italy. Its vegetative growth is very slow and it is averse to severe pruning. It is also characterised by the large number of suckers it produces.

It comes into bearing early. It does not flower abundantly and it has a medium pistil abortion rate. It is self-incompatible; "Trepp" and "Casaliva" are reported to be good pollinisers. Productivity is medium and constant. The fruit ripens early and simultaneously and natural fruit drop is marked. Oil yield is high.

It is resistant to cold, olive leaf spot and olive knot but particularly susceptible to olive fly and wood rot.

Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	erect
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	short
WIDTH:	broad
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Itrana

SYNONYMS: "Aitana", "Aitanella", "Aitanesca", "Attanesca", "Auliva a acqua", "Cicerone", "Esperiana", "Gaetana", "Gitana", "Iatanella", "Itana", "Oliva di Esperia", "Oliva di Gaeta", "Oliva grossa", "Olivacore", "Raitana", "Reitana", "Strano", "Tanella", "Trana", "Velletrana".

ORIGIN: Italy (IT).

DISTRIBUTION: Lazio.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This hardy variety is characterised by its rapid growth. It has a high rooting ability.

It has an intermediate start to bearing. The flowers have a medium pistil abortion rate and it is self-incompatible; reported pollinisers are "Leccino", "Pendolino" and "Olivastro".

Productivity is high and alternate. Ripening is phased and late and the fruit has a high removal force.

The crop is suitable for black pickling (freestone) or oil production (medium oil content).

It is particularly tolerant of cold and of the chief fungal diseases and it is sensitive to attacks from olive fly.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	present
LENTICELS:	many and large

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	rounded
SURFACE:	scabrous
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Leccino

SYNONYMS: "Leccio", "Premice", "Silvestrone".

ORIGIN: Italy (IT).

DISTRIBUTION: Tuscany, Umbria and various olive-growing areas.

PURPOSE: Oil.

Agronomic and commercial considerations

This vigorous variety adapts easily to various olive-growing environments and it has a high rooting ability.

It comes into bearing early. The flowers have a low pistil abortion rate and it is self-incompatible; reported pollinisers are "Moraiolo", "Pendolino", "Maurino", "Frantoio", "Morchiaio", "Gremignolo di Bolgheri", "Piangente", "Razzo", "Trillo" and "Frantoio".

Productivity is high and constant. The fruit ripens early and simultaneously and has a low removal force.

It has a low oil content and it is freestone.

It is particularly tolerant of cold, olive leaf spot, wood rot and olive knot whereas it shows marked sensitivity to sooty mould.

Recently, some clones have been identified that are tolerant of low temperatures or also suitable for table olive production.

Morphological characters

TREE

Vigour:	strong
Growth habit:	drooping
Canopy density:	dense

INFLORESCENCE

Length:	short
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	rugose
Number of grooves:	high
Termination of apex:	with mucro

Majatica di Ferrandina

SYNONYMS:	"Gentile", "Gentile di Matera", "Maggiatica", "Maiatica", "Materana", "Oliva di Ferrandina", "Oliva dolce", "Paesana", "Pasola".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Basilicata.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This very vigorous cultivar does not adapt readily to environments other than its area of origin. It has a high rooting ability. It is self-compatible and it has an intermediate start of bearing. It flowers early and it has a high pistil abortion rate. Fruit ripening is late.

Productivity is high and alternate. It gives a high yield of oil, but the fruit is prized above all for dehydrated olives. It has a flesh-to-stone ratio of 5.6 and it is freestone.

It is susceptible to olive knot, olive leaf spot and olive fly.

Morphological characters

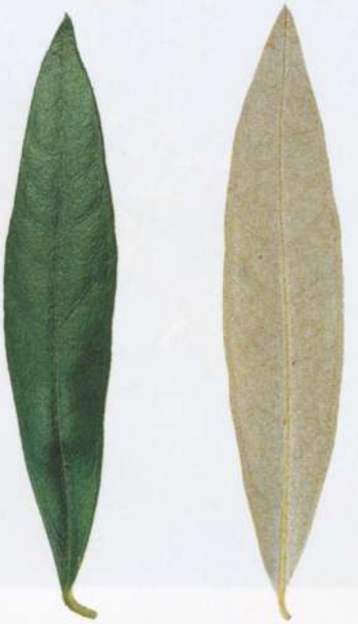
TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF



Shape:	elliptic-lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Moraiolo

SYNONYMS:	"Anerina", "Assisano", "Bucino", "Carboncella", "Cimignolo", "Corniolo", "Fosco", "Migno", "Morella", "Morellino", "Morello", "Morichiello", "Morina", "Morinello", "Muragliola", "Neraiolo", "Nerella", "Nerina", "Neriolo", "Nostrale", "Ogliolo", "Oliva nera", "Oliva tonda", "Oriolo", "Petrosello", "Ruzzolino", "Tondello", "Tondolina", "Tondorina".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Central Italy.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is characterised by its great hardiness and it adapts best to hill country. It has difficulty in healing pruning scars.

It has a high rooting ability. It comes into bearing early. It is self-incompatible; pollinisers are "Maurino", "Pendolino", "Morchiaio", Lazzero", "Razzaio", "Maremmano", "Americano", "Rosino" and "Mignolo". The scientific literature reports some phenomena of interincompatibility during fertilisation. Its time of flowering is intermediate. The pistil abortion rate does not exceed 20% and the flowers produce a lot of pollen.

Ripening is phased and the fruit is often arranged in clusters. Productivity is high and constant. The oil content is high and the oil is rated highly for its characteristic "fruity" taste and for its squalene and polyphenol content.

It is susceptible to olive leaf spot, olive knot, sooty mould and wood rot whereas it tolerates low-moisture soils and sea winds.

Numerous ecotypes of this variety have been identified.

Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	erect
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	spherical
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Nocellara del Belice

SYNONYMS: "Aliva da salari", "Aliva di Castelvetrano", "Aliva tonda", "Aliva tunna", "Aneba", "Anerba", "Bianculidda", "Giarraffa", "Mazara", "Neba", "Nebba", "Nerba", "Niciddalora", "Nocciolara", "Nocellaia", "Nocellara di Castelvetrano", "Nociara", "Nociddara", "Nocillara", "Nuciddara", "Oliva da salari", "Oliva di Castelvetrano", "Oliva di Mazara", "Oliva tonda", "Oliva tunna", "Trapanese".

ORIGIN: Italy (IT).

DISTRIBUTION: Western Sicily.

PURPOSE: Table.

Agronomic and commercial considerations

This variety displays moderate growth and adapts readily to different environmental conditions. It has a high rooting ability.

It comes into bearing early. It is self-incompatible and generally it is pollinised by "Giarraffa" or "Pidicuddara" which have proved effective pollinisers. The pistil abortion rate is low.

Productivity is high and constant. Ripening is late. The firm flesh of the fruit makes it suitable for green olives in brine. It has a flesh-to-stone ratio of 5.6 and it is freestone. The oil is rated very highly.

It is susceptible to verticillium wilt, olive leaf spot, *Cercospora cladosporioides* and olive knot but resistant to olive fly.

Morphological characters

TREE

Vigour:	medium
Growth habit:	drooping
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	spherical
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	scabrous
Number of grooves:	high
Termination of apex:	with mucro

Nocellara Etnea

SYNONYMS: "Augghialora", "Bianca", "Forte", "Ghiandalora", "Janca", "Marmarigna", "Marmorigna", "Marmorina", "Marmurigna", "Marmurina", "Minnullara", "Nagghiara", "Nocellaia", "Nocellara", "Nociara", "Nucidalaria", "Nuciddara", "Oliva di Paternò", "Oliva verde", "Paisana", "Partisciana", "Partornese", "Patornisa", "Paturnisa", "Pizzuta", "Pizzutedda", "Rappara", "Tortella", "Tortidda", "Turtedda", "Turtidda", "Verdesca", "Verdese", "Virdisi", "Virdisia", "Virdusedda".

ORIGIN: Italy (IT).

DISTRIBUTION: Eastern Sicily.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This vigorous, hardy variety shows rapid vegetative growth. The scientific literature reports that its cuttings are particularly difficult to root.

It comes into bearing early. It flowers abundantly, and it produces large amounts of pollen, which germinates with great ease. It is self-incompatible; pollinisers are "Zaituna", "Biancolilla" and "Moresca". Phenomena of incompatibility have been noted with the "Ogliarola messinese" and "Tonda Iblea" cultivars.

Productivity is high and alternate. Ripening is late and the fruit has quite a high removal force. The oil yield is low. The very uniform size and firm flesh of the fruit, which is resistant to handling, means that it is considered an excellent variety for green pickling. It has a flesh-to-stone ratio of 6.

It is particularly resistant to olive knot, olive fly and sooty mould. In contrast, it is susceptible to olive leaf spot.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	drooping
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
NIPPLE:	absent
LENTICELS:	few and large

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	scabrous
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Ogliarola Barese

SYNONYMS: "Aliva baresana", "Ascolana", "Baresana", "Bitontina", "Castellaneta", "Cima di Bitonto", "Marinese della Capitanata", "Marinese di Lavello", "Nostrale di Venosa", "Nostrana bitontina", "Ogliarola di Bitonto", "Ogliarola di Molfetta", "Ogliarola di Venosa", "Oliva ascolana", "Olivo baresano", "Olivo d'Ascoli", "Olivo nostrale", "Olivo paesano", "Paesana di Bitonto".

ORIGIN: Italy (IT).

DISTRIBUTION: Puglia, Basilicata.

PURPOSE: Oil.

Agronomic and commercial considerations

This hardy, fast-growing variety has an intermediate start of bearing.

It is self-incompatible. The flowers have a low pistil abortion rate. It is often used as a polliniser. Productivity is medium and alternate.

Ripening is late and the fruit has a high removal force. The oil yield at the mill is high. The oil is rated very highly and is characteristic of the producing area of Bitonto.

It is sensitive to freezing, sea winds and olive knot but tolerant of olive leaf spot. It is very susceptible to attacks from olive fly.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	low
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	low
Shape:	elliptic-elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Oliva di Cerignola

SYNONYMS: "Barilotto", "Bella di Cerignola", "Cerignolese", "Grossa di Spagna", "Lunga", "Oliva a ciuccio", "Oliva a prugna", "Oliva di Spagna", "Oliva grossa", "Oliva lunga", "Oliva manna", "Olivo dell'asino", "Prone", "Prugne", "Spagnola".

ORIGIN: Italy (IT).

DISTRIBUTION: Puglia.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is very demanding as regards agronomic conditions. It has a low rooting ability.

It comes into bearing early. Flowering is late and the flowers have a high pistil abortion rate. It is partially self-compatible, in spite of which it requires pollinisers such as "Mele", "Sant' Agostino" and "Termite di Bitetto".

Productivity is medium and alternate. The fruit ripens early and has a high removal force. It is appreciated for the size of the fruit, but not for the quality of its flesh, which is tough, fibrous and hard to separate from the stone. The fruit is used for green olives in brine. It has a flesh-to-stone ratio of 3 and a low oil content.

It is susceptible to olive leaf spot, olive knot, sooty mould and olive fly and sensitive to cold. Some clones of this variety have been identified.

Morphological characters

TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	short
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	very high
Shape:	ovoid-elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	present
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	pointed
Base:	pointed
Surface:	scabrous
Number of grooves:	high
Termination of apex:	with mucro

Ottobratica

SYNONYMS: "Dedarico", "Dolce", "Mirtoleo", "Ottobrarico", "Ottobratico".

ORIGIN: Italy (IT).

DISTRIBUTION: Calabria.

PURPOSE: Oil.

Agronomic and commercial considerations

This very hardy variety grows to a considerable size. It has a medium rooting ability and an intermediate start of bearing.

It is self-incompatible. It flowers early and the flowers have a high pistil abortion rate. Productivity is high and alternate. The fruit ripens early and it has a low removal force and a high oil yield. It is clingstone.

It tolerates olive knot, olive leaf spot and cold. Several phenotypes have been reported.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	short
WIDTH:	broad
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	low
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	low
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	low
TERMINATION OF APEX:	with mucro

Pendolino

SYNONYMS: "Piangente", "Maurino fiorentino".

ORIGIN: Italy (IT).

DISTRIBUTION: Central Italy.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety adapts easily to different soil and environmental conditions. It has a high rooting ability.

It comes into bearing early. Flowering is abundant, early and quite lengthy. These characteristics have encouraged its use as a polliniser. It is self-incompatible. The flowers have a low pistil abortion rate. Productivity is high and constant. The time of ripening is intermediate and the fruit has a low removal force. It has a low oil content.

It is sensitive to olive knot, olive leaf spot and sooty mould. It shows a good tolerance of low temperatures, and the fruit is quite resistant to attacks from olive fly.

Morphological characters

TREE

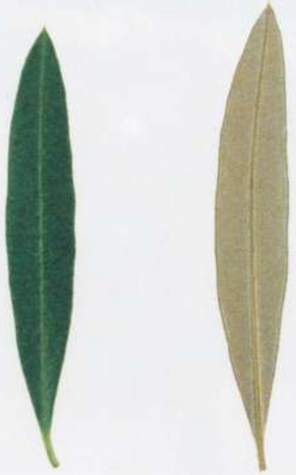
Vigour:	medium
Growth habit:	drooping
Canopy density:	dense

INFLORESCENCE

Length:	long
Number of flowers:	high

LEAF

Shape:	lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	epinastic



FRUIT

Weight:	low
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	low
Termination of apex:	with mucro

Pisciottana

SYNONYMS:	"Ogliastrina", "Olivo dell'Ascea".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Campania.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is very productive and adapts readily even in coastal areas. It is vigorous and characterised by its marked ability to send out shoots. It has an intermediate start of bearing.

It is partially self-compatible. Crop production is greater when the "Racioppa" and "Oliva grossa" varieties are grown in the orchards as pollinisers. Flowering is early. It has a low pistil abortion rate and its pollen has a low germination capacity. Productivity is high and alternate. Ripening is phased and the fruit has a high removal force and a high oil content.

It is particularly tolerant of limited rainfall and salt-laden winds as well as of olive knot, sooty mould and olive leaf spot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	drooping
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	long
Width:	broad
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	low
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	low
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Pizz'e Carroga

SYNONYMS:	"Becco di Cornacchia", "Bianca di Villacidro", "Carroga", "Oliva bianca", "Oliva di Villacidro", "Pizzu de Carroga", "Puntuda", "Puntuta".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Southern Sardinia.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety does not adapt readily to environments other than its area of origin. It has a good rooting ability and an intermediate start of bearing.

It is partially self-compatible; fruit set is improved by using pollinisers such as "Tondo di Cagliari" and "Bosana". It flowers early and it has a medium pistil abortion rate. Productivity is high and alternate. The fruit ripens early and it is suitable for oil as well as for green olives in brine. It has a low oil yield and it is freestone.

It is sensitive to olive knot, olive leaf spot and olive fly. Numerous clones have been reported in the scientific literature.

Morphological characters

TREE

Vigour:	medium
Growth habit:	drooping
Canopy density:	sparse

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	present
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	scabrous
Number of grooves:	high
Termination of apex:	with mucro

Rosciola

SYNONYMS:	"Caprigna", "Caprigne", "Caprino", "Ogliarola", "Procanica", "Ragiola", "Rasciola", "Razzetta", "Ricciuta", "Risciola", "Rossa", "Rossaia", "Rossastro", "Rossellino", "Rossolino", "Rossolo", "Rusciola", "Tordino".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Lazio, Abruzzi, Le Marche and Umbria.
PURPOSE:	Oil.

Agronomic and commercial considerations

This small, hardy variety adapts readily to the different olive-growing environments of central Italy. It has a high rooting ability.

It comes into bearing late. Its time of flowering is intermediate and it has a low pistil abortion rate. It is self-incompatible; good pollinisers are "Canino", "Leccino", "Olivastrone", "Moraiolo" and "Raja". The pollen shows a high fertilisation capacity with varieties such as "Frantoio" and "Pendolino".

Productivity is high and constant. The fruit ripens early. Colour change is phased and spreads unevenly from the apex towards the base. The fruit has a low removal force and a medium oil content.

It shows good resistance to cold, but it is sensitive to olive knot, olive leaf spot and olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	narrow
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	few and large

ENDOCARP

WEIGHT:	low
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Sant'Agostino

SYNONYMS:	"Cazzarola", "Oliva andriesana", "Oliva di Andria", "Oliva dolce di Andria", "Oliva grossa", "Oliva grossa andriesana", "Oliva pane", "Oliva senza pane".
ORIGIN:	Italy (IT).
DISTRIBUTION:	Puglia.
PURPOSE:	Table.

Agronomic and commercial considerations

This variety is not very hardy and does not adapt readily to different olive-growing areas. Good productivity is only guaranteed when it is irrigated. It has a low rooting ability.

It comes into bearing late. It is self-incompatible and effective pollinisers are "Oliva di Cerignola", "Mele" and "Termite di Bitetto". It flowers in mid-May, hence after the most common oil varieties of Puglia. It has a high pistil abortion rate. The fruit ripens early. It is very uniform in size and is suited to producing green table olives. It has a flesh-to-stone ratio of 9 and a low oil yield and it is freestone.

It shows little tolerance of verticillium wilt, olive knot, sooty mould or spring cold. In contrast, it is particularly resistant to olive leaf spot.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	drooping
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and large

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	scabrous
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Santa Caterina

SYNONYMS: "Oliva di San Biagio", "Oliva di San Giacomo", "Oliva lucchese".

ORIGIN: Italy (IT).

DISTRIBUTION: Tuscany.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is adapted to cool, hilly country. It is hardy and it has a highly developed canopy which tends to spread outwards. Its rooting ability is medium.

It comes into bearing early. Its time of flowering is intermediate and the flowers have a pistil abortion rate of about 60%. It is self-incompatible. Productivity is high and constant. The fruit has a medium removal force. It is particularly suited for green pickling because of its high flesh-to-stone ratio. It has a low oil yield and it is freestone.

It shows a good resistance to low winter temperatures. The scientific literature is at variance on its resistance to olive leaf spot: some authors consider it to be sensitive while others do not. It is considered susceptible to olive knot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	drooping
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	very high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Nipple:	absent
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Surface:	scabrous
Number of grooves:	high
Termination of apex:	with mucro

Taggiasca

SYNONYMS: "Gentile", "Lavagnina", "Olivo di Taggia", "Pignola d'Oneglia", "Tagliasca", "Tagliasco".

ORIGIN: Italy (IT).

DISTRIBUTION: Liguria.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety grows to a large size and accounts for the whole of olive growing in the province of Imperia. It adapts well both on the coast and in hilly country. Its rooting ability is rather low.

It comes into bearing early. Its time of flowering is intermediate. It is partially self-compatible and the flowers have a low pistil abortion rate. Fruit set is high and productivity is high and constant. Fruit ripening is late and the fruit gives a high yield of oil. The oil obtained from this variety is characteristic of the production of Liguria.

It is sensitive to spring cold and water shortage and it is susceptible to olive knot and olive fly.

Morphological characters

TREE

Vigour:	strong
Growth habit:	drooping
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	low
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

JORDAN

JORDAN

OLIVE CROP AREA: 90,936 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	23,000	14,000	21,500
Imports	500	2,000	5,000
Exports	500	0	1,000
Consumption	22,000	19,000	22,000
TABLE OLIVES (t)			
Production	16,500	36,000	36,000
Imports	0	500	0
Exports	500	1,500	2,000
Consumption	16,500	27,000	34,500

Rasi'i

SYNONYMS:	"Muhassan", "Nabali", "Rsa'si".
ORIGIN:	Jordan (JO), Palestine.
DISTRIBUTION:	Jordan, Palestine.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety is very widespread in almost the whole of the country. It originates from the south of Jordan, and it is grown in mountainous areas with an annual rainfall of around 330 mm. Owing to its resistance to dry climates, it is also spreading to the drier, eastern parts of the country where it is grown with supplemental irrigation. It is hardy and it has a low rooting ability.

It has an intermediate start of bearing. Its time of flowering is also intermediate. It is self-compatible and it has a low pistil abortion rate. It produces abundant pollen and it is also used as a polliniser for many other cultivars. Ripening is late. Productivity is high and alternate. The fruit is used for green or black pickling as well as for producing good quality oil. It is clingstone.

The percentage oil content of the fruit varies from 15% to 28% according to end use, growing area and whether or not irrigation is applied. It adapts readily to different climates and soils. It is very resistant to drought and cold climates, besides being tolerant of salinity. It is resistant to the most common olive diseases although it is sensitive to olive anthracnose.

Morphological characters

TREE

Vigour:	weak
Growth habit:	drooping
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	high
Termination of apex:	with mucro

LEBANON

LEBANON

OLIVE CROP AREA: 43,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	6,500	3,500	7,000
Imports	3,500	4,000	3,500
Exports	1,500	500	500
Consumption	8,000	8,000	9,000
TABLE OLIVES (t)			
Production	10,000	3,500	6,000
Imports	3,000	6,000	3,000
Exports	1,500	1,000	500
Consumption	12,500	8,500	8,500

Soury

SYNONYMS: "Bayadi", "Beladi", "Grande Ayrouni".

ORIGIN: Lebanon (LB).

DISTRIBUTION: Northern Lebanon, Mount Lebanon.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This is the most important variety in Lebanon. It is of medium hardiness and it has a medium rooting ability. It has an intermediate start of bearing. Its time of flowering is also intermediate. It is partially self-compatible and it has a medium pistil abortion rate. Its time of ripening is intermediate. Productivity is medium and alternate. When irrigated, it comes into bearing in the second or third year. The fruit is used for oil production and for green or black pickling. The oil is good quality and the yield is medium to high. It is freestone.

It is moderately resistant to drought, cold and salinity but sensitive to olive leaf spot, verticillium wilt and olive knot.

Morphological characters

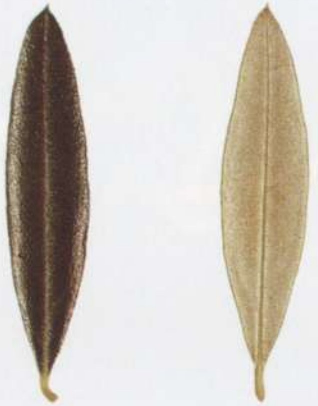
TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	sparse

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF



Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

MOROCCO

MOROCCO

OLIVE CROP AREA: 480,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	110,000	70,000	65,000
Imports	0	0	0
Exports	35,000	7,500	20,000
Consumption	50,000	55,000	55,000
TABLE OLIVES (t)			
Production	100,000	85,000	80,000
Imports	0	0	0
Exports	70,000	50,000	60,000
Consumption	35,000	21,000	25,000

Haouzia

SYNONYMS: –

ORIGIN: Morocco (MA): clonal selection of the "Picholine marocaine".

DISTRIBUTION: Region of Haouz (Marrakech).

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This recent variety belongs to a clonal selection of the "Picholine marocaine". It differs from the other clones selected in the number of perfect flowers per inflorescence, its early start to bearing, its greater suitability for leafy stem propagation and its higher productivity. It is hardy and it has a high rooting ability.

When irrigated, the first fruiting occurs in the third year. Its time of flowering is intermediate. It is partially self-compatible and it has a high pistil abortion rate. The "Picholine Languedoc" is used as a polliniser for this variety. Productivity is high and alternate. The time of ripening is intermediate. It is used for both oil extraction (yield of 23%) and green pickling. It is freestone.

It is highly resistant to olive leaf spot and tolerant of olive knot and drought.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Menara

SYNONYMS: "Ronde de la Menara".

ORIGIN: Morocco (MA): clonal selection of the "Picholine marocaine".

DISTRIBUTION: Region of Haouz (Marrakech).

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This new variety is a clonal selection of the "Picholine marocaine". It differs from the latter in its better suitability for leafy stem propagation, the number of flowers per inflorescence and the higher number of perfect flowers it produces. It also differs in its early start of bearing and its higher productivity. It is very hardy and it has a high rooting ability.

When irrigated, it grows and comes into bearing very quickly (third year). Its time of flowering is intermediate. Although partially self-compatible, it is advisable to grow it with a suitable polliniser such as the "Picholine Languedoc". It has a medium pistil abortion rate and it produces abundant pollen. Its time of ripening is intermediate. It is used for oil production (oil content of 24%), giving a good quality product, as well as for green or black pickling. It is freestone.

It is particularly resistant to olive knot.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Meslala

SYNONYMS: "Meslala beldia".

ORIGIN: Morocco (MA).

DISTRIBUTION: Northern and central-northern regions. It accounts for approximately 1% of Morocco's olive-growing acreage

PURPOSE: Table.

Agronomic and commercial considerations

This productive variety is of medium hardiness. It is grown in areas that are irrigated or that have good rainfall. It is rated highly for green pickling, but it can also be used for producing good quality oil although it does give a medium yield at the mill. It has a medium rooting ability. It comes into bearing late and its time of flowering is intermediate. It is self-compatible and it has a medium pistil abortion rate. It produces abundant pollen. Productivity is high and alternate. The fruit has a low removal force and a low oil content. It is freestone.

It is resistant to olive leaf spot but appears to be very sensitive to olive knot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Picholine marocaine

SYNONYMS: "Beldi", "Bouchouika", "Bousbina", "Zit", "Zitoun". Numerous varieties have the same denomination as this cultivar. It is very similar in characteristics to the "Sigoise" variety cultivated in Algeria.

ORIGIN: Morocco (MA).

DISTRIBUTION: It accounts for 96% of Morocco's total olive-growing resources.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is well adapted to the soil and climatic conditions throughout Morocco. It has undergone selection to introduce clones with specific characters in new orchards. It is hardy and it has a medium rooting ability.

Its start of bearing and time of flowering are intermediate. It is partially self-compatible and it has a medium pistil abortion rate. It produces abundant pollen. Owing to its resistance to drought, it is used as rootstock for the "Picholine Languedoc". Its productivity is high and alternate.

It is a typical dual-purpose variety. When intended for pickling, it provides every kind of product, from split green olives to ripe black olives. It is freestone. It gives a medium oil yield at the mill (20%). The oil is excellent quality and it has a very high oleic acid content. Another characteristic of the oil produced from this variety is its resistance to freezing (it remains fluid at even -12°C). Hence, it is used for canned products.

It is sensitive to olive leaf spot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

PALESTINE

PALESTINE

OLIVE CROP AREA: 85,000 ha

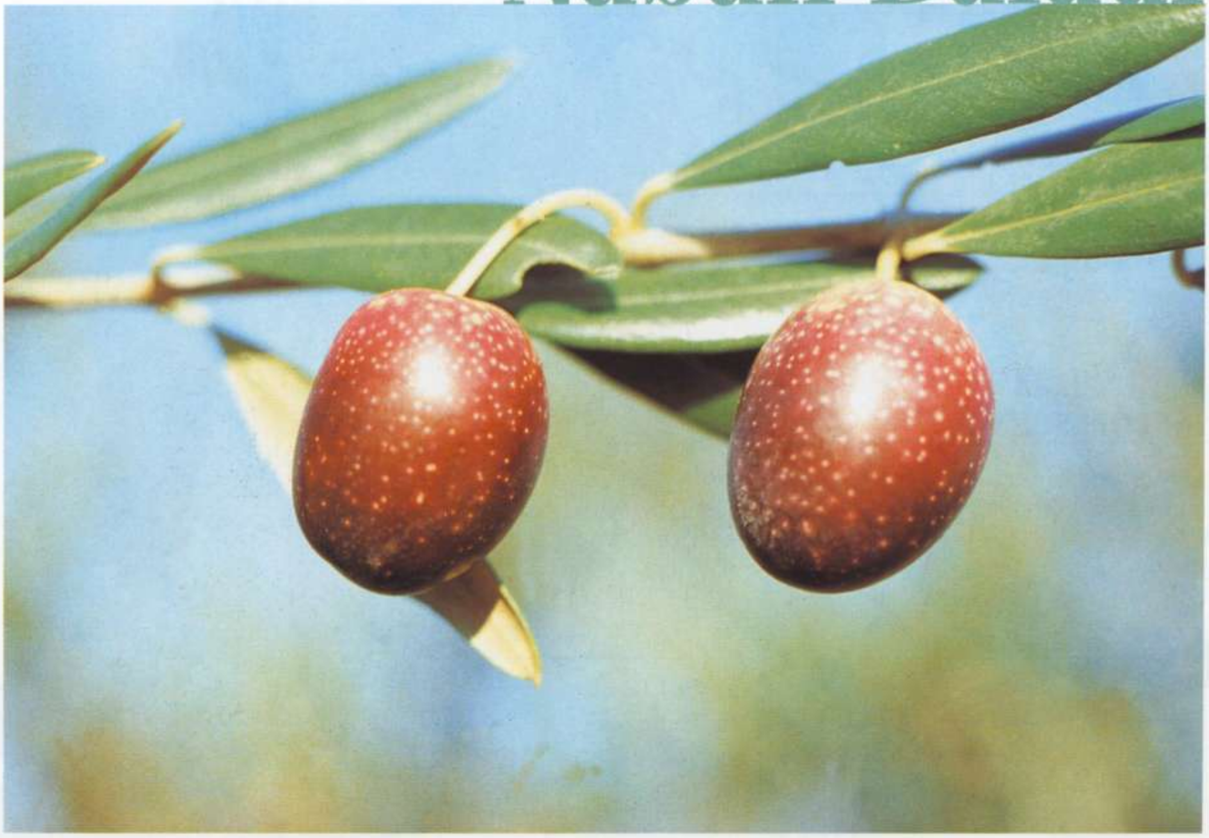
OLIVE OIL (t)

Average production	15,000 – 20,000

TABLE OLIVES (t)

Average production	4,500 – 5,000

Nabali Baladi



SYNONYMS:	"Bathni", "Khudri", "Krari", "Kteit", "Nabala", "Roman", "Souri".
ORIGIN:	Palestine, Jordan (JO).
DISTRIBUTION:	Palestine, Jordan.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety belongs to the "Souri" group. It is typical of the West Bank, where it is sometimes also called "Roman", testifying to its ancient origins. It accounts for about 90% of Palestine's bearing trees, which represents 9,000,000 trees in the West Bank and 200,000 in the Gaza strip. It is found mainly in the hilly northern and central areas of the West Bank. It grows slowly when not irrigated. It is considered hardy and well adapted. It has a low rooting ability.

It has an intermediate start of bearing. Its time of flowering is also intermediate but depends on the growing area. It is partially self-compatible. Productivity is high and alternate. The fruit is suitable for both green pickling and oil production. It has a high oil content of 28-33%. The oil is aromatic and is greatly appreciated in the producing areas. The fruit stands up well to transportation and handling and it is clingstone.

It is resistant to cold and drought but susceptible to olive fly and olive leaf spot.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards base
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and large

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	asymmetric
Position of maximum transverse diameter:	towards base
Apex:	pointed
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

PORTUGAL

PORTUGAL

Olive crop area: 340,000 ha

	1996/97	1997/98	1998/99
Olive oil (t)			
Production	44,800	42,000	36,000
Imports*	1,700	200	6,300
Exports*	17,000	17,400	12,500
Consumption	62,000	69,600	67,000
Table olives (t)			
Production	9,000	9,000	8,700
Imports*	400	500	500
Exports*	5,500	3,800	5,600
Consumption	8,500	10,200	10,300

* These figures refer solely to trade with countries outside the European Community

Carrasquenha

SYNONYMS: "Carrasca", "Redonda".

ORIGIN: Portugal (PT).

DISTRIBUTION: Alentejo.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety adapts to different types of soils and to drought but it is sensitive to excessive moisture.

Owing to its poor rooting ability it is propagated by grafting.

It has an intermediate start of bearing. Its time of flowering is also intermediate and it is considered partially self-compatible. Its time of ripening is intermediate and its fruit removal force is high. Productivity is high and alternate.

It gives a medium-to-high yield of good quality oil and it is also used for green pickling.

It is considered susceptible to olive knot.

Morphological characters

TREE

VIGOUR:	weak-medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium-high

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

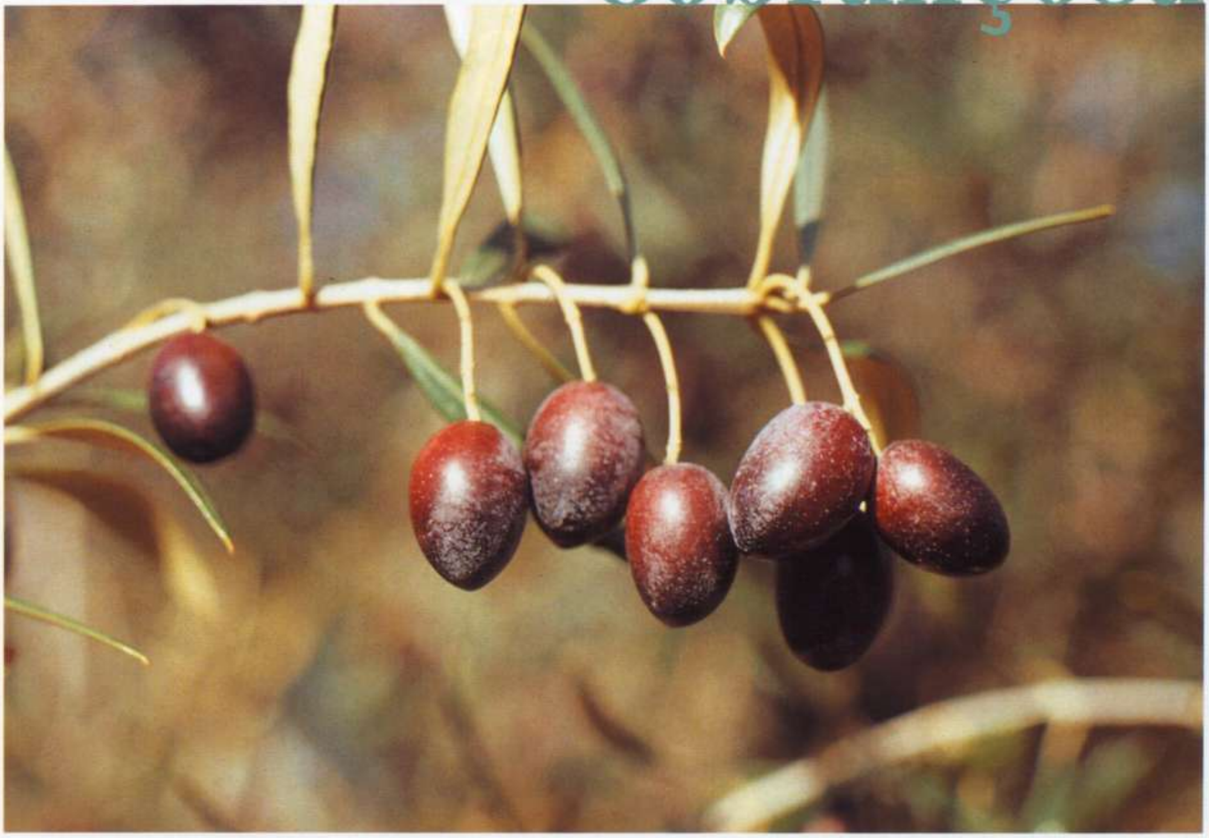
FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and large

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Cobrançosa



SYNONYMS: "Verdeal Cobrançosa".

ORIGIN: Portugal (PT).

DISTRIBUTION: Trás-os-Montes

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is appreciated for its tolerance of cold and lime-induced chlorosis but is considered susceptible to drought and salinity. It has a medium rooting ability.

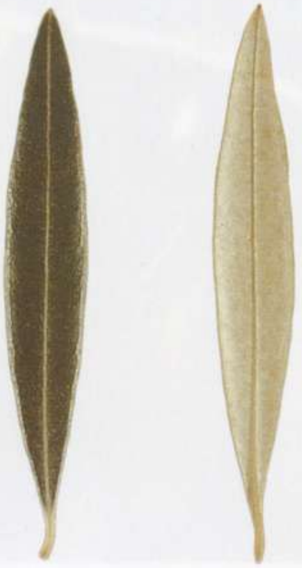
It has an intermediate start of bearing. Its time of flowering is also intermediate and it is self-compatible. Productivity is high and constant. Its time of fruit ripening is intermediate. The fruit has a low removal force, although natural fruit drop is low, which facilitates mechanical harvesting. It has a medium oil content.

It is considered susceptible to olive knot and olive anthracnose.

Morphological characters

TREE

VIGOUR:	medium-weak
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium



INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	epinastic

FRUIT

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Cordovil de Castelo Branco

SYNONYMS:	"Cordovil".
ORIGIN:	Portugal (PT).
DISTRIBUTION:	Beira Interior (region of Castelo Branco).
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety is of medium hardiness and shows some tolerance of cold, drought and salinity. It is propagated well by truncheons and leafy stem cuttings.

It has an intermediate start of bearing. Its time of flowering is also intermediate and it is considered self-compatible. Productivity is medium to high and constant. Its time of ripening is intermediate and the fruit shows some resistance to removal; none the less, it is suited to mechanical harvesting.

It gives a good yield of good quality oil. The fruit is also considered suitable for table olives.

It is considered susceptible to olive knot.

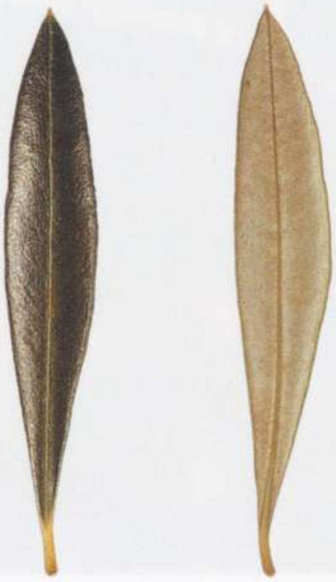
Morphological characters

TREE

VIGOUR:	medium-strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium



LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high-very high
SHAPE:	spherical
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro or with small mucro

Cordovil de Serpa

SYNONYMS: "Cordovil de Moura".

ORIGIN: Portugal (PT).

DISTRIBUTION: Alentejo.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This hardy variety is fairly tolerant of calcareous soils but sensitive to cold, drought and salinity. It has a medium rooting ability.

It comes into bearing early, and its time of flowering is intermediate. It is considered to be self-compatible and to have a high pistil abortion rate.

Productivity is high and alternate. Its time of ripening is intermediate and the fruit shows some resistance to removal, which disappears when it is fully mature. It has a medium oil yield. When used for oil production it is rated highly for the quality of its oil, which has a high content of oleic acid. It is freestone and is also prized for green pickling.

It is considered very susceptible to olive knot but resistant to olive fly.

Morphological characters

TREE

Vigour:	medium-weak
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	rounded
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	rugose
Number of grooves:	low
Termination of apex:	with mucro

Galega Vulgar

SYNONYMS: "Galega", "Molar", "Molarinha", "Negroa", "Negrucha".

ORIGIN: Portugal (PT).

DISTRIBUTION: This is the most important variety of Portugal. It is found throughout the country and accounts for about 80% of total olive acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is appreciated for its drought-tolerance. It is sensitive to cold, salinity and calcareous soils.

Its rooting ability can range from medium to low since it is difficult to root when mist-propagated as a leafy stem cutting and it is considered good rootstock for other varieties.

It comes into bearing early. Its time of flowering is intermediate and it is considered self-compatible. Productivity is high and alternate. The fruit ripens early. It has a high removal force, which hinders mechanical harvesting.

It is intended primarily for oil production although it gives a low yield of oil. Freestone, it is also rated highly for table olives.

It is resistant to verticillium wilt but susceptible to olive knot, olive anthracnose and olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro

Maçanilha Algarvia

SYNONYMS:	"Maçanilha de Tavira".
ORIGIN:	Portugal (PT).
DISTRIBUTION:	Algarve.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety is considered hardy because it tolerates cold, drought and salinity. It has a medium rooting ability.

It has an intermediate start of bearing. It is considered self-compatible and tends to have low pistil abortion rates. Productivity is medium and alternate. The time of ripening is intermediate and the olives have a low removal force, which facilitates mechanical harvesting.

It is used for oil production because of its high oil yield, and for production as green olives or olives turning colour because of the size and quality of its fruit; it is clingstone.

It is considered susceptible to olive fly, olive anthracnose and olive knot.

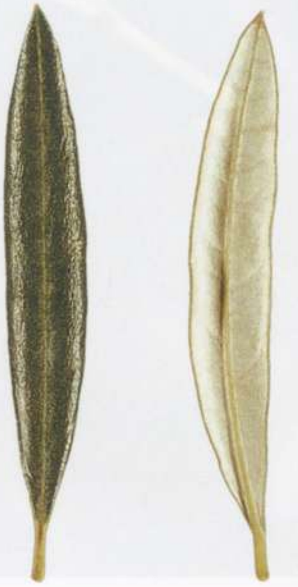
Morphological characters

TREE

Vigour:	strong-medium
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium



LEAF

Shape:	lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	high
Shape:	spherical
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and large

ENDOCARP

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Redondal

SYNONYMS: "Redondil Grosso".

ORIGIN: Portugal (PT).

DISTRIBUTION: Trás-os-Montes.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is susceptible to cold, drought and salinity. It has a medium rooting ability.

It comes into bearing late. Its time of flowering is intermediate and it is considered self-compatible. Productivity is low and constant. Its time of ripening is intermediate and the fruit has a medium removal force. It is used for oil production because of its good oil yield and because of the quality of the oil, which is rich in oleic acid. It is rated highly for table olive production because of the size of the fruit; it is freestone.

It is considered sensitive to olive knot and olive anthracnose.

Morphological characters

TREE

Vigour:	medium-weak
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF

Shape:	lanceolate
Length:	long
Width:	narrow
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	medium-high
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

SLOVENIA

SLOVENIA

OLIVE CROP AREA: 960 ha

OLIVE OIL (t)	Average
Production	200
Imports	250
Exports	0
Consumption	450

TABLE OLIVES (t)	
Production	100
Imports	0
Exports	0
Consumption	100

Biancheral

SYNONYMS:	"Belica", "Bianca Istriana", "Biancara", "Biancaria", "Zlahtna Belica".
ORIGIN:	Slovenia (SLO).
DISTRIBUTION:	Istria (SLO, HR) and Friuli-Venezia Giulia (IT).
PURPOSE:	Oil.

Agronomic and commercial considerations

This vigorous variety is erect and very hardy. It is the variety grown most widely for oil production in Koper (Slovenia) and in the province of Trieste (Italy).

Its start of bearing is intermediate. It flowers early and it is partially self-compatible. Its productivity is high and constant. The fruit ripens late and it has a high removal force.

It has a high content of oil, which is rated very highly.

It shows a good tolerance of sea winds, cold, calcareous soils and severe pruning. It is particularly sensitive to olive moth and olive fly, whereas it is tolerant of olive leaf spot and olive knot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

SPAIN

SPAIN

OLIVE CROP AREA: 2,239,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	947,300	1,077,000	789,200
Imports*	35,500	28,000	80,000
Exports*	66,700	76,200	75,000
Consumption	470,200	550,400	500,000
TABLE OLIVES (t)			
Production	244,000	310,000	359,000
Imports*	3,900	1,600	5,000
Exports*	92,100	105,500	124,000
Consumption	100,000	113,000	150,000

* These figures refer solely to trade with countries outside the European Community

Alfafara

SYNONYMS: "Alfafarenca".

ORIGIN: Spain (ES).

DISTRIBUTION: It is grown in various districts of the provinces of Albacete, Valencia and Alicante. It is the main variety in the districts of Valle de Ayora (Valencia) and Almansa (Albacete).

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is resistant to cold and susceptible to drought. It roots easily as a cutting and tends to be used as root-stock for other varieties. Its start of bearing is intermediate. Productivity is high and alternate. The fruit ripens late and it usually has a medium removal force. It has a low-to-medium oil content and a very low extractability index. The oil is good quality. Sometimes the fruit is used for green pickling.

It is considered very resistant to olive knot and susceptible to olive leaf spot.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Aloreña

SYNONYMS: "Arola", "Manzanilla de los Ranchos".

ORIGIN: Spain (ES).

DISTRIBUTION: It is the main variety in the central-southern district of the province of Málaga. In all, it covers almost 20,000 ha.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is not very vigorous and it is particularly susceptible to drought. It comes into bearing early and it has a high, constant productivity. Its time of ripening is intermediate. The fruit has a low removal force, which facilitates mechanical harvesting. As it is used mainly for green pickling, the fruit is harvested in late August and it is rated highly for the quality of its flesh, although it does not keep very long after processing. It is clingstone and it has a medium content of poor quality oil.

It is considered sensitive to olive leaf spot.

Morphological characters

TREE

Vigour:	weak
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	short
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	high
Shape:	spherical
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded-pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Arbequina

SYNONYMS: "Arbequí", "Arbequín", "Blancal".

ORIGIN: Spain (ES).

DISTRIBUTION: This is the most important variety in Catalonia where it is grown on more than 55,000 ha. It is also found extensively in Aragón and recently in Andalusia. Outside Spain it is found mainly in Argentina (AR).

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is considered hardy because of its resistance to cold and its tolerance of salinity. It is susceptible, however, to lime-induced chlorosis in very calcareous soils.

It has a high rooting ability and it comes into bearing early.

Its time of flowering is intermediate and it is considered self-compatible.

The fruit has a medium removal force but its small size hinders mechanical harvesting by trunk shakers.

It is rated highly for its high, constant productivity. The oil is excellent quality, mainly because of its good organoleptic characteristics, although it has a low stability. Oil content is high. Because of its low vigour it can be used in intensive orchards.

It is considered sensitive to olive fly and verticillium wilt but tolerant of olive leaf spot and olive knot.

It is the base variety for the "Les Garrigues" (Lleida) and "Siurana" (Tarragona) designations of origin in Catalonia.

Morphological characters

TREE

Vigour:	weak
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	medium

LEAF

Shape:	elliptic
Length:	short
Width:	medium
Longitudinal curvature of the blade:	epinastic

FRUIT

Weight:	low
Shape:	spherical
Symmetry:	symmetric
Position of maximum transverse diameter:	towards base
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	low
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	without mucro or with small mucro

Bical

SYNONYMS:	–
ORIGIN:	Spain (ES).
DISTRIBUTION:	It is grown in the Sierra district of the province of Huelva and in the Alentejo in Portugal (PT). In Spain it is cropped on 2,000 ha.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is productive and well adapted to its growing area. It has an intermediate-to-late start of bearing.

It adapts readily to mechanical harvesting.

It has a medium content of oil with good organoleptic characteristics. The fruit is of good quality and is used sometimes for table olives.

Morphological characters

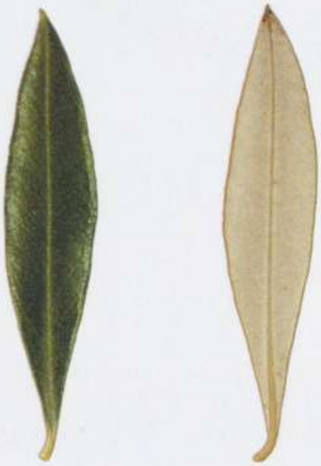
TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	medium-long
NUMBER OF FLOWERS:	low-medium

LEAF



SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium-high
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Blanqueta

SYNONYMS: "Blanca", "Blanquilla", "Blanc Roig".

ORIGIN: Spain (ES).

DISTRIBUTION: It covers more than 17,000 ha in the provinces of Alicante, Valencia and Murcia. It is also found on a small scale in Catalonia.

PURPOSE: Oil.

Agronomic and commercial considerations

This low-vigour variety is considered hardy because of its adaptability to drought and its resistance to cold.

It has a high rooting ability.

It comes into bearing early. It flowers late and its pollen has a low germination capacity.

Productivity is high and constant. The time of ripening is intermediate and the fruit removal force is quite high, which hinders mechanical harvesting. It has a high oil content. The sweet, fruity oil is rated highly for its quality, but it has a very low stability.

It is considered resistant to olive leaf spot and olive knot.

Morphological characters

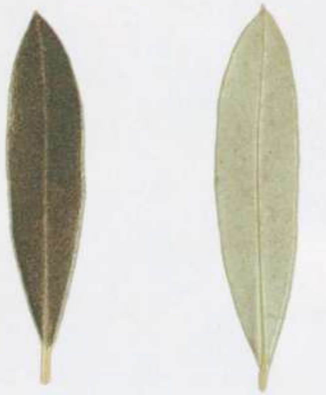
TREE

Vigour:	weak
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF



Shape:	elliptic
Length:	short
Width:	medium
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	low
Shape:	spherical
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	low
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Callosina

SYNONYMS: "Cornicabra", "Cornicabra Blanca", "Cornicabra Parda".

ORIGIN: Spain (ES).

DISTRIBUTION: This is a secondary variety that is grown mainly in the provinces of Alicante and Murcia. It is cropped on about 1,000 ha.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is appreciated for its resistance to drought. It roots easily and it is considered self-compatible. Its start of bearing is intermediate.

The fruit ripens late and it has a high removal force, which hinders harvesting.

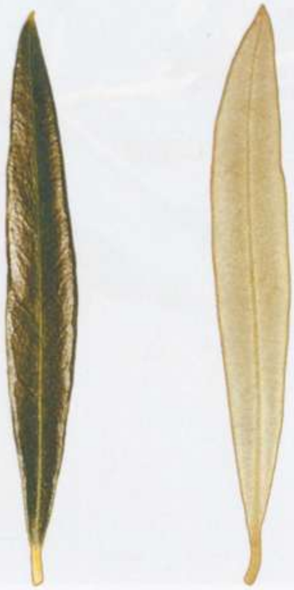
It is rated highly for its high, constant productivity and for the high content and quality of its oil. It is valued for pickling because of the quality of the flesh and because it keeps for a long time when processed. It has a me dium flesh-to-stone ratio.

It is considered susceptible to olive leaf spot and resistant to olive knot and olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium



INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	lanceolate
LENGTH:	long
WIDTH:	narrow
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	present or absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Carrasqueño de la Sierra

SYNONYMS: "Carrasqueño".

ORIGIN: Spain (ES).

DISTRIBUTION: It is widespread in the districts of Sierra and Valle de los Pedroches in the north of the province of Córdoba.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is not very hardy since it is affected adversely by winter cold and drought although it does seem to be tolerant of calcareous soils. It has a high rooting ability as a leafy stem cutting. Its start of bearing is intermediate.

Its time of flowering is intermediate-late and ripening is late. Productivity is medium and constant. The high fruit removal force hinders mechanical harvesting. It is dual-purpose although it is intended primarily for oil production; it is considered to have a low oil content. It appears to be sensitive to olive knot and olive leaf spot.

Morphological characters

TREE

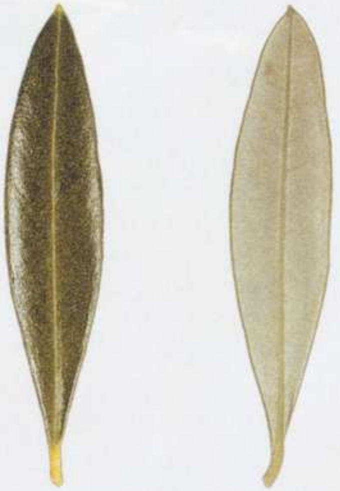
Vigour:	medium
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	long
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

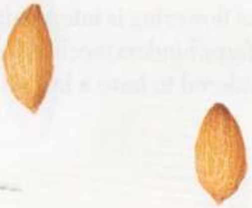


FRUIT

Weight:	medium-high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	present or absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro



Castellana

SYNONYMS: "Abucheña", "Común", "Piñoncilla", "Verdeja".

ORIGIN: Spain (ES).

DISTRIBUTION: It is the main variety in the provinces of Cuenca and Guadalajara. It is also predominant in the districts of La Roda in Albacete and Vegas in Madrid.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is of medium-to-weak vigour and performs well in poor soils and cold areas. It has a high rooting ability as a cutting. Its time of ripening is intermediate and the fruit has a high removal force. Productivity is high and constant.

It is used exclusively for oil production and its oil content and quality are medium.

It is considered susceptible to olive knot.

Morphological characters

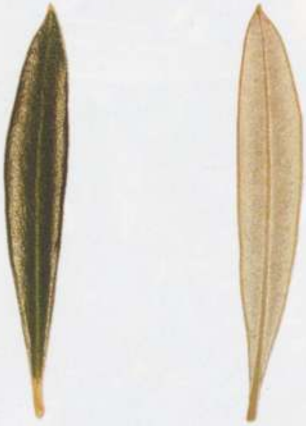
TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF



Shape:	elliptic-lanceolate
Length:	medium
Width:	narrow
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Changlot Real

SYNONYMS: "Changlot", "Dulce", "Royal".

ORIGIN: Spain (ES).

DISTRIBUTION: It is grown on some 5,000 ha in the provinces of Alicante and Valencia.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety adapts well to adverse soils but is considered susceptible to cold and drought.

It comes into bearing early. Its time of flowering is intermediate and the fruit tends to grow in clusters.

Productivity is high and alternate.

The time of ripening is intermediate. The high fruit removal force hinders mechanical harvesting. The fruit is appreciated for its high content of oil, which is considered to be of good quality.

It is considered susceptible to olive knot and resistant to olive fly.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Cornicabra

SYNONYMS:	"Cabrilla", "Común", "Cornal", "Cornatillo", "Corneja", "Cornetilla", "Cornezuelo", "Cornicabra Basta", "Cornicabra Negra", "Corniche", "Cornita", "Corriente", "Cuernecillo", "de Aceite", "del Piquillo", "del Terreno", "Longar", "Longuera", "Osnal".
ORIGIN:	Spain (ES).
DISTRIBUTION:	This is the second Spanish variety in terms of the area cropped. Currently it is grown on over 270,000 ha in the provinces of Ciudad Real, Toledo, Madrid, Badajoz and Cáceres.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is easy to root and adapts very well to poor soils and dry, cold areas.

It comes into bearing late.

Flowering is also late. Although it tends to have a high pistil abortion rate, fruit set is adequate when the variety is self-pollinated. Its pollen has a low germination capacity.

Productivity is high and alternate.

The fruit ripens late and it has a high removal force, which hinders mechanical harvesting.

It is prized for the high yield and quality of its oil, which has excellent organoleptic characteristics and is very stable. It is also used for pickling because of the quality of its flesh.

It is particularly sensitive to olive knot, verticillium wilt and olive leaf spot. It is also sensitive to attacks from olive fly.

Morphological characters

TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	without mucro

Empeltre

SYNONYMS: "Aragonesa", "Común", "de Aceite", "Fina", "Injerto", "Llei", "Macho", "Mallorquina", "Navarro", "Negral", "Payesa", "Salseña", "Terra Alta", "Vera", "Verdiel", "Zaragozana".

ORIGIN: Spain (ES).

DISTRIBUTION: This is the predominant variety in the regions of Aragón and the Balearic Islands. It has also spread to some districts of Castellón, Tarragona and Navarre. In all, it is grown on more than 70,000 ha in Spain. Outside Spain it has spread in Argentina (AR) in the provinces of Mendoza and Córdoba.

PURPOSE: Oil.

Agronomic and commercial considerations

This hardy variety is susceptible to winter freezing.

It has a low rooting ability, which is why it is usually propagated by grafting. It comes into bearing late while flowering is early. It is considered partially self-compatible and its pollen has a low germination capacity.

Productivity is constant and high. The fruit ripens early and it has a low removal force, which facilitates mechanical harvesting.

It is rated very highly for its high content of excellent quality oil. It is also used for black pickling.

It is considered tolerant of olive anthracnose and verticillium wilt and sensitive to olive leaf spot, olive knot and olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Farga

SYNONYMS: "Común", "Farg".

ORIGIN: Spain (ES).

DISTRIBUTION: It is grown mainly in the provinces of Castellón (20,000 ha), Tarragona (8,000 ha) and Lleida.

PURPOSE: Oil.

Agronomic and commercial considerations

This very vigorous variety has a great ability to respond to severe pruning and it is considered very hardy because of its resistance to winter cold.

It has a low rooting ability. It performs well as rootstock for low-vigour varieties.

It has a late start of bearing while flowering and ripening are early. Productivity is high and alternate. The fruit has a high removal force, which hinders mechanical harvesting. It has a high content of oil that is of very good quality but difficult to extract.

It is considered susceptible to olive leaf spot and verticillium wilt but resistant to olive knot.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	low

LEAF

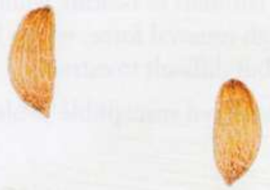
SHAPE:	elliptic
LENGTH:	short
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	smooth-rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro



Gordal de Granada

SYNONYMS: "Gordal".

ORIGIN: Spain (ES).

DISTRIBUTION: It is spread through the whole province of Granada, especially in the southern, eastern and northern districts.

PURPOSE: Table.

Agronomic and commercial considerations

This vigorous variety is easy to root as a cutting.

It has a late start of bearing and its productivity is high and alternate.

It has a low oil content and it is clingstone. It is rated highly for pickling because of the size of the fruit.

It is considered susceptible to olive knot.

Morphological characters

TREE

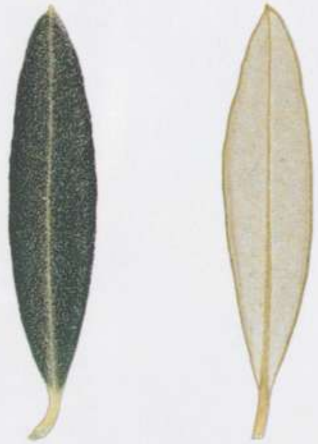
Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	hyponastic



FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards base or central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Gordal Sevillana

SYNONYMS: "Bella di Spagna", "Gordal", "Mollar", "Morcal de Limón", "Sevillano".

ORIGIN: Spain (ES).

DISTRIBUTION: This table olive variety is found widely around the world. In Spain its cultivation is concentrated in the province of Seville where it is grown on 30,000 ha. Outside Spain it has spread widely in the United States (US) where it is grown on close to 4,000 ha.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is vigorous when grafted, but not so when grown on its own roots. It is considered tolerant of winter cold and damp but susceptible to drought.

It has a very low rooting ability as a leafy stem cutting and is therefore normally propagated by grafting.

It has an intermediate start of bearing. Its time of flowering is also intermediate. It is considered self-incompatible and it has a high pistil abortion rate; the pollen is considered to have a very low germination capacity.

Productivity is low and alternate. Ripening is early and the fruit is used exclusively for pickling because of its very low oil content. For table olive processing it is prized more for the large size of the fruit than for its quality. It is clingstone and its soft texture, sensitivity to lye treatment and tendency to "fish eye" mean that it has to be processed with great care.

It has a high flesh-to-stone ratio. It produces two types of fruit: normal olives and shotberries, which are parthenocarpic olives featured by premature halted development and earlier ripening.

It is resistant to olive leaf spot and susceptible to olive knot and olive anthracnose.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	high

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards base or central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and large

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	scabrous
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Hojiblanca

SYNONYMS: "Casta de Cabra", "Casta de Lucena", "Lucentino".

ORIGIN: Spain (ES).

DISTRIBUTION: This is the third Spanish variety in terms of area cropped. It is currently grown on more than 200,000 ha in the provinces of Córdoba, Málaga, Seville and Granada.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is easy to root and resistant to calcareous soils. It is considered hardy because it is drought-resistant and tolerant of winter cold.

Its start of bearing is intermediate. Its time of flowering is intermediate to late, it is self-compatible and its pollen is of medium quality.

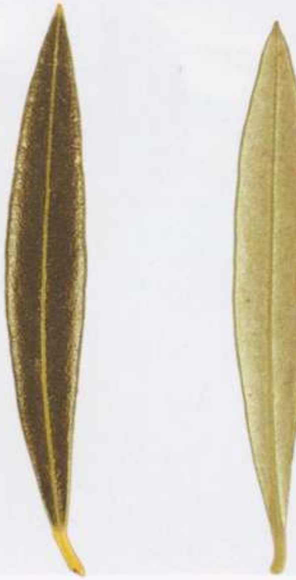
Ripening is late. Productivity is high and alternate. The fruit has a high removal force, which hinders mechanical harvesting. It is dual-purpose and it is considered highly suitable for processing California-style black-ripe olives because of the firm texture of its flesh. It has a low oil content but the oil is rated very highly for its quality, although it has a low stability; it is clingstone.

It is considered susceptible to olive leaf spot, olive knot and verticillium wilt. It is not particularly resistant to olive fly or olive anthracnose.

Morphological characters

TREE

Vigour:	medium-strong
Growth habit:	erect
Canopy density:	medium



INFLORESCENCE

Length:	short
Number of flowers:	medium

LEAF

Shape:	lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	flat

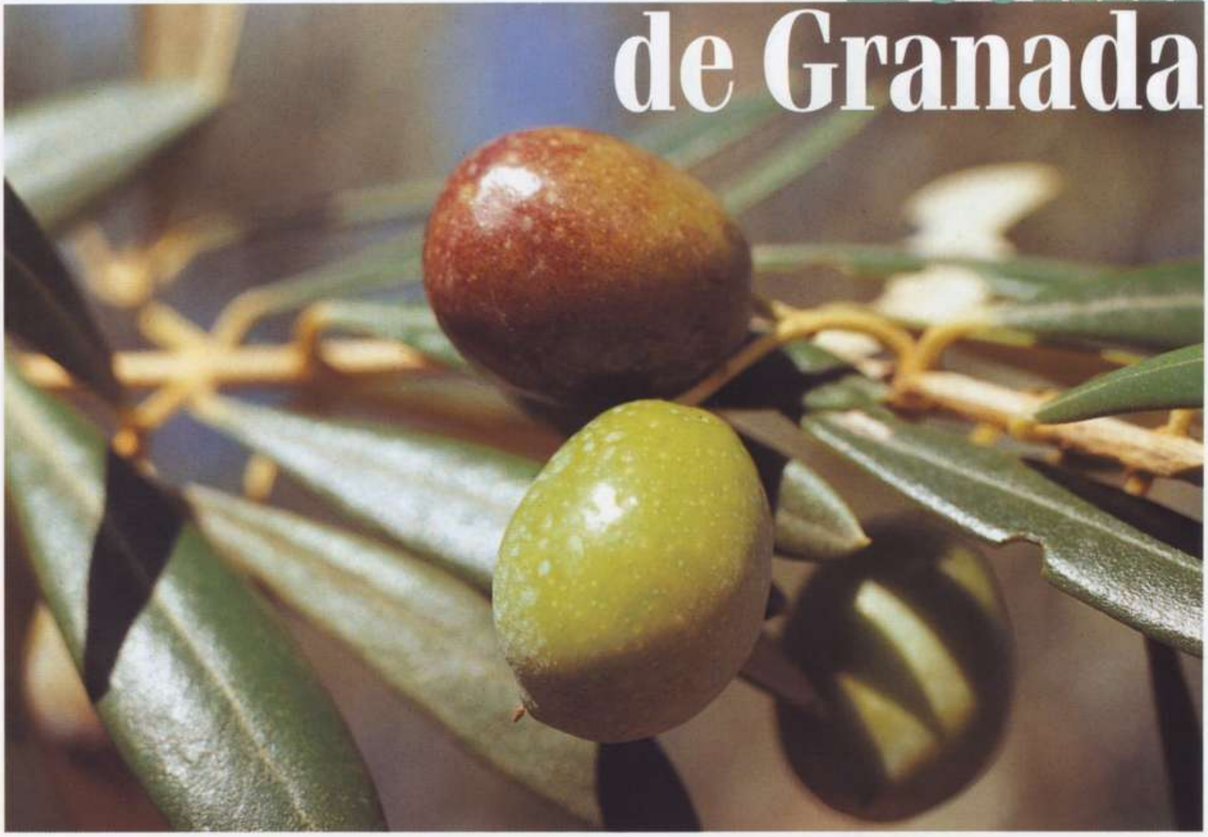
FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Lechín de Granada



SYNONYMS: "Caera", "Común", "Cuquillana", "Cuquillera", "Cuquillo", "de Aceite", "Lechín", "Manzanilla", "Menuda", "Minuera", "Negreta", "Onil".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is found very extensively in south-east Spain. It is grown on some 36,000 ha in the provinces of Granada, Almería, Murcia and Albacete.

PURPOSE: Oil.

Agronomic and commercial considerations

This vigorous variety adapts very well to calcareous soils and drought. It is also considered tolerant of cold.

It has an early start of bearing. Its time of flowering is intermediate and it is considered self-compat-ible.

Productivity is high and alternate. The fruit ripens late. It has a high removal force which, combined with its small size, hinders any type of mechanical or hand harvest. It is rated highly for its productivity and the high content and excellent quality of its oil, which is yellowish in colour and has a low stability. In some of the districts where it is found it is also used for black pickling and it is noteworthy for its lengthy keeping properties after processing.

It is very susceptible to olive leaf spot and susceptible to olive knot and olive fly.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF

Shape:	elliptic
Length:	short
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Lechín de Sevilla

SYNONYMS: "Ecijano", "Lechín", "Lechino", "Zorzaleño".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is grown on over 125,000 ha in the provinces of Seville, Córdoba and Cádiz.

PURPOSE: Oil.

Agronomic and commercial considerations

This vigorous variety adapts very well to adverse soils and cold areas.

It is very resistant to calcareous soils, salinity and drought. Owing to its hardiness it is considered excellent rootstock for other varieties and it has a high rooting ability.

Its start of bearing is intermediate.

Its time of flowering is also intermediate. Sometimes it displays a high pistil abortion rate and its pollen has a low germination capacity, but generally it is considered self-compatible.

Productivity is high and alternate. The fruit ripens early. The ratio between its removal force and size is high, which hinders mechanical harvesting. This variety is falling into decline because it has a medium oil content and it is difficult to harvest. Nevertheless, the oil is prized for its organoleptic properties and the fruit may also be used for black pickling.

It is susceptible to olive knot but it stands out as one of the most resistant varieties to olive leaf spot and olive fly.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Loaime

SYNONYMS: "Alohaime", "Guitoso", "Negral".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is found widely throughout the province of Granada, above all in the districts of La Vega and Norte where it is grown on up to 6,000 ha.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is not very vigorous. It is very productive, alternating, and tolerant of drought.

It has a late start of bearing. It gives a good yield of quality oil and the fruit is freestone.

It is used mainly for table olives, for a very specific type of preparation in which the olives are dried like raisins. When ripe, they are sun-dried and then mixed with salt and stored for some time. When the olives are to be used, they are re-hydrated in hot water. They can be used in this way because the ripe olives are sweet and do not require traditional processing to be made edible. Owing to this characteristic and to the fact that they ripen early they tend to come under heavy attack from birds.

It appears to be sensitive to olive leaf spot.

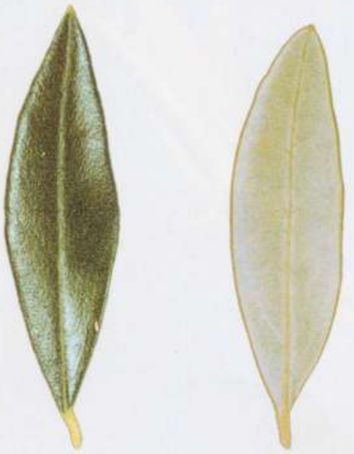
Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium



LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	broad
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium
SHAPE:	spherical
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Lucio

SYNONYMS:	"Lucio Gordo", "Plateado".
ORIGIN:	Spain (ES).
DISTRIBUTION:	This variety is found throughout the province of Granada. Its production is concentrated in the districts of Norte and La Vega where it is grown on almost 10,000 ha.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is very vigorous. Its productivity is low and alternate. It is propagated easily by cuttings.

It has a late start of bearing. The fruit ripens early and it has a low removal force, which facilitates harvest. It is rated highly for oil production because of its high oil content.

It is considered sensitive to olive leaf spot and to cold.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

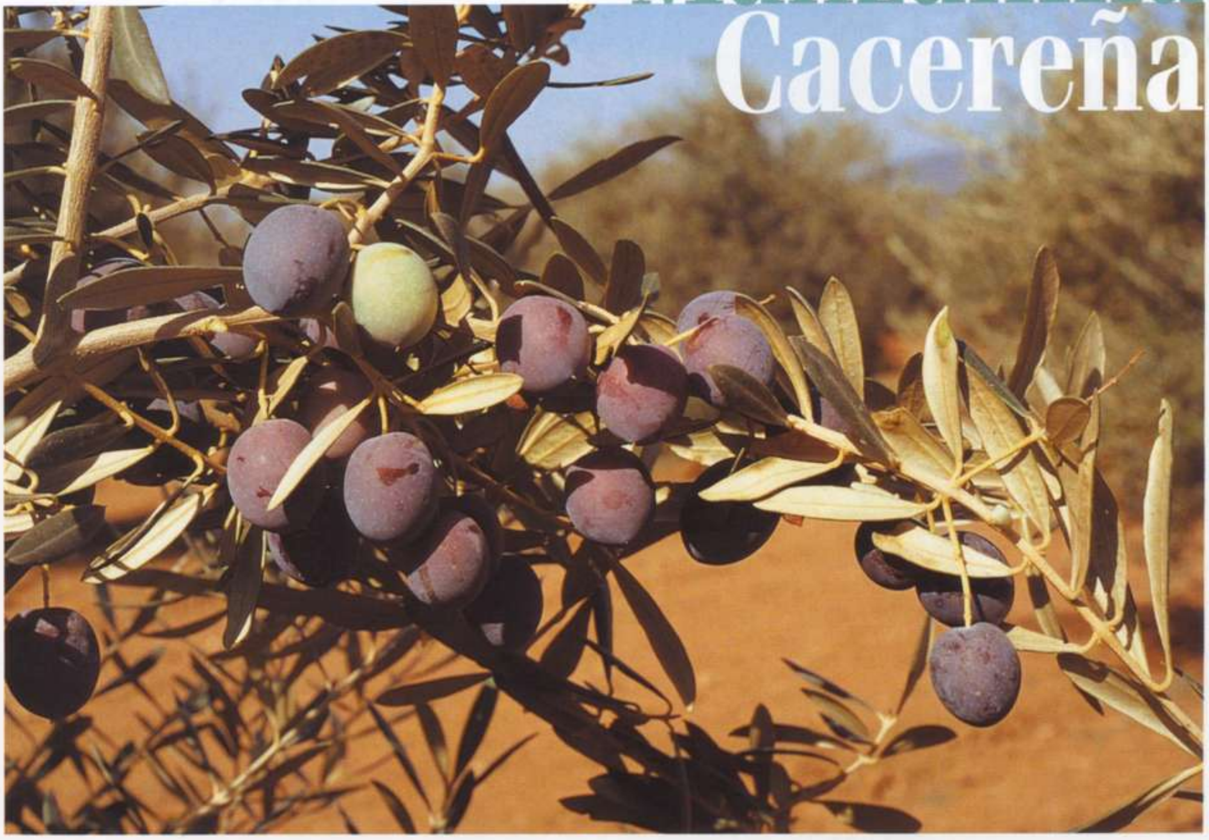
FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro or with small mucro

Manzanilla Cacereña



SYNONYMS: "Albareña", "Asperilla", "Alvellanilla", "Blanca Cacereña", "Cacereña", "Costalera", "Hembra", "Manzanil", "Manzanilla", "Morillo", "Negrilla", "Perito", "Redonda", "Redondilla" and "Turiel" in Spain; "Azeiteira", "Azeitoneira" and "Negrinha" in Portugal.

ORIGIN: Spain (ES) or Portugal (PT).

DISTRIBUTION: It is grown on 64,000 ha in Spain in the provinces of Cáceres, Badajoz, Salamanca, Ávila and Madrid. It is also found widely in Portugal (PT).

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is low-vigour and adapts well to poor soils and winter cold.

It has a very high rooting ability.

It comes into bearing early. Flowering is also early and it is considered to be self-compatible and to have a low pistil abortion rate. Productivity is high and constant.

The fruit ripens early and it has a low removal force, which facilitates mechanical harvesting.

The quality of the fruit flesh makes it rated highly for green and black pickling. It has a low oil content but the oil is good quality; it is freestone.

It is susceptible to verticillium wilt but tolerant of olive fly and olive knot.

Morphological characters

TREE

Vigour:	weak
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	spherical
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central or towards base
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Manzanilla Prieta

SYNONYMS: "Bolondo", "Manzanilla", "Manzanilla Basta", "Manzanilla Serrana", "Manzanillo Cordobí", "Manzanillo Real", "Perillo", "Perito".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is widespread in the whole of western Andalusia and southern Extremadura. It is found most abundantly in the mountain ranges of Huelva and Seville.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety adapts well to damp soils and cold areas.

Its time of flowering is intermediate to late.

Productivity is medium and constant. The time of ripening is early. The fruit has a low oil content and it is clingstone. It is rated highly for table olives as well as for oil production, and its oil is considered to be of good quality. The fruit has a high removal force, which hinders harvesting.

It is considered susceptible to olive leaf spot and olive knot.

Morphological characters

TREE

Vigour:	weak
Growth habit:	spreading
Canopy density:	sparse

INFLORESCENCE

Length:	short-medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	medium
Shape:	spherical
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	rugose
Number of grooves:	high
Termination of apex:	without mucro

Manzanilla de Sevilla

SYNONYMS: "Carrasqueña", "Manzanilla", "Manzanilla Basta", "Manzanilla Blanca", "Manzanilla Común", "Manzanilla de Carmona", "Manzanilla de Dos Hermanas", "Manzanillo", "Manzanillo Fino", "Manzanillo Temprano", "Romerillo", "Varetuda".

ORIGIN: Spain (ES).

DISTRIBUTION: This is the most widespread variety in the world. In Spain it is grown primarily in the provinces of Seville (50,000 ha), Badajoz (30,000 ha) and Huelva (4,000 ha). Outside Spain it is also grown in Portugal (PT), the United States (US), Israel (IL), Argentina (AR) and Australia (AU).

PURPOSE: Table.

Agronomic and commercial considerations

This low-vigour variety adapts readily when grown in intensive orchards. It is considered susceptible to root rot, to lime-induced chlorosis when grown on calcareous soils, and to winter cold.

It has a medium rooting ability when propagated as a hardwood cutting and when mist-propagated as a leafy stem cutting.

It has an early start of bearing. Its time of flowering is intermediate and its pollen has a high germination capacity. In Spain it is cultivated without pollinisers. Nevertheless, it has been observed that fruit set is enhanced under cross-pollination and that pollinisers are necessary in other countries.

Productivity is high and alternate. The fruit ripens early and it has a high removal force. In Spain it is harvested green for fermentation as Sevillian-style olives and in the United States it is harvested when changing colour for preparation as California-style black-ripe olives. It is the most highly rated table olive variety in the world because of its productivity and the quality of its fruit. In addition, it has a medium oil content and the oil is of high quality and stability; it is freestone.

It is considered very sensitive to verticillium wilt and sensitive to olive leaf spot, olive knot, olive anthracnose and olive fly.

Morphological characters

TREE

VIGOUR:	weak-medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	spherical
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Mollar de Cieza

SYNONYMS:	"Ciezana", "Mollar".
ORIGIN:	Spain (ES).
DISTRIBUTION:	This variety is cultivated in eastern Spain, above all in the province of Murcia where it is grown on almost 500 ha.
PURPOSE:	Table.

Agronomic and commercial considerations

This variety is not very hardy because it is considered susceptible to cold and drought.

It roots well as a cutting although it is usually propagated by grafting in the area where it is grown.

It comes into bearing early and ripens early. Its productivity is high and constant. The fruit is used primarily for pickling because it is rated very highly for the quality of its flesh and the ease with which it is separated from the stone. Because the flesh is delicate it has to be harvested with care and does not keep for long when pickled.

As an oil-olive, it is considered to have a low content of good quality oil. The fruit has a very low removal force, which facilitates mechanical harvesting.

It is considered susceptible to olive leaf spot and very resistant to olive knot.

Morphological characters

TREE

Vigour:	weak
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	long
Number of flowers:	medium-high

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic-ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Morisca

SYNONYMS:	"Basta", "Cañaval Blanco", "Cañaval Negro", "Churro", "Cordovil", "Cornezuelo", "de Pico", "Gorda", "Macho" and "Verdial" in Spain; "Conserva de Elvas" in Portugal.
ORIGIN:	Spain (ES) or Portugal (PT).
DISTRIBUTION:	This variety is grown on over 75,000 ha in Spain, principally in the south of the province of Badajoz and in the north of the province of Seville. In Portugal (PT) it is grown in the Alentejo.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This hardy variety adapts very well to poor soils but it is susceptible to winter cold. It has a poor rooting ability.

Ripening is late and the fruit has a medium removal force. It is rated highly for its high, constant productivity, its fruit size and its oil content. It is also used for green pickling.

It is considered susceptible to olive leaf spot, olive knot and olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Morona

SYNONYMS: "Manzanillo de Morón".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is localised in the Sevillian districts of Campiña and Sierra Sur where it is grown on almost 3,000 ha.

PURPOSE: Table.

Agronomic and commercial considerations

This hardy variety is rated very highly for its high, constant productivity. It is propagated easily as a cutting. Its start of bearing is intermediate, as is its time of flowering.

Ripening is late and the fruit is usually used for table olives because of its size, quality and high flesh-to-stone ratio. Its firm texture makes it tolerant of rough pickling treatments. In contrast, its oil content is medium-to-low and it is clingstone.

It is considered resistant to olive knot.

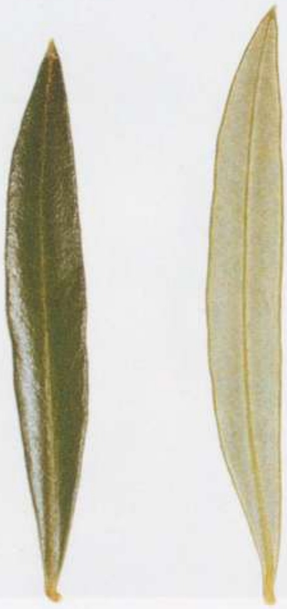
Morphological characters

TREE

Vigour:	medium
Growth habit:	drooping
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	medium



LEAF

Shape:	lanceolate
Length:	long
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	spherical-ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	present or absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Morrut

SYNONYMS: "Montserratina", "Morruda", "Regués", "Rocha", "Roig".

ORIGIN: Spain (ES).

DISTRIBUTION: The cultivation of this variety is localised in the provinces of Castellón (5,709 ha) and Tarragona (23,300 ha). In the latter province it is found primarily in the districts of Baix Ebre and Montsiá where it is ranked as the main variety.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is not very hardy because it is susceptible to drought, poor soils and winter cold.

It is propagated easily as a leafy stem cutting under mist propagation.

It has a late start of bearing. It flowers very early and it tends to have high pistil abortion rates.

Productivity is low and alternate.

Ripening is very late in spite of which the fruit lends itself to mechanical harvesting.

It gives a good oil yield although the stability of the oil is very low.

It is not attacked by olive fly because it ripens late but it is very susceptible to olive leaf spot.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	sparse

INFLORESCENCE

Length:	long
Number of flowers:	high

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	narrow
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Palomar

SYNONYMS: "Olesana".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is cultivated in the province of Barcelona where it is grown on up to 1,000 ha.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is demanding as regards climate and soil. It has a high rooting ability. It has an intermediate start of bearing. It flowers early and its pollen has a low germination capacity.

Productivity is high and alternate. The fruit ripens early and has a low removal force, which facilitates mechanical harvesting. It has a high oil yield and it is rated very highly for the organoleptic quality of its oil, which is also very stable.

It is considered very sensitive to olive leaf spot.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards base
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards base
APEX:	pointed
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro or with small mucro

Picual

SYNONYMS: "Andaluza", "Blanco", "Corriente", "de Aceite", "de Calidad", "Fina", "Jabata", "Lopereño", "Marteño", "Morcona", "Nevadillo", "Nevadillo Blanco", "Nevado", "Nevado Blanco", "Picúa", "Salgar", "Temprana".

ORIGIN: Spain (ES).

DISTRIBUTION: This is the most important variety in Spain. Currently grown on more than 700,000 ha, it is predominant in the provinces of Jaén (97%), Córdoba (38%) and Granada (40%). It is the base material for new orchards.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is hardy because it adapts to a variety of climatic and soil conditions. In particular it is considered tolerant of cold, salinity and excess soil moisture. It is sensitive, however, to drought and calcareous soils.

It is easy to propagate vegetatively as a hardwood cutting and as a leafy stem cutting. It has a high shooting capacity after severe pruning.

It comes into bearing early.

Its time of flowering is intermediate and it is considered self-compatible. The fruit ripens early and it has a low removal force, which facilitates mechanical harvesting.

It is rated very highly for its high, constant productivity and high oil content and the ease with which it is grown. It gives oil of medium quality that stands out because of its high stability, which means it is very resistant to rancidity, and because of its very high oleic acid content.

It is tolerant of olive knot and olive anthracnose, but it is very susceptible to olive leaf spot and verticillium wilt. It is also susceptible to olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	low
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	scabrous
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro

Picudo

SYNONYMS:	"Basta", "Carrasqueño de Córdoba", "Carrasqueño de Lucena", "Castúo", "Paseto", "Picudo Blanco".
ORIGIN:	Spain (ES).
DISTRIBUTION:	This is one of the main Spanish varieties. It is not predominant, however, in any one district. It is grown on about 60,000 ha in the provinces of Córdoba, Granada, Málaga and Jaén.
PURPOSE:	Oil.

Agronomic and commercial considerations

This vigorous variety is considered hardy because of its high tolerance of calcareous soils and excess soil moisture; it is also considered fairly tolerant of cold.

It has a high rooting ability. It has an early start of bearing. Its time of flowering is intermediate and its pollen has a high germination capacity, both of which make it recommendable for use as a polliniser.

Productivity is high and alternate. Ripening is late and the fruit has a high removal force, which greatly hinders mechanical harvesting.

It is rated very highly for the good yield and excellent organoleptic characteristics of its oil, which are greatly appreciated in the "Baena" DOC area (designation of origin). The oil is characterised by a high linoleic acid content, little bitterness and low stability. It is also valued for pickling.

It is considered very sensitive to olive leaf spot, olive anthracnose and olive knot.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	broad
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Rapasayo

SYNONYMS: "Rompesayo".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is localised in the provinces of Huelva and Seville. In the latter province it is grown on an estimated 2,000 ha.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is very hardy because it adapts to poor soils. It has a medium rooting ability when propagated as a leafy stem cutting.

Its time of flowering is intermediate-late. It has a late start of bearing and a low, alternate productivity.

The fruit ripens late and it has a low content of quality oil. It is used sometimes for pickling. The fruit removal force is high.

It appears to be tolerant of olive knot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	drooping
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium-long
NUMBER OF FLOWERS:	high

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

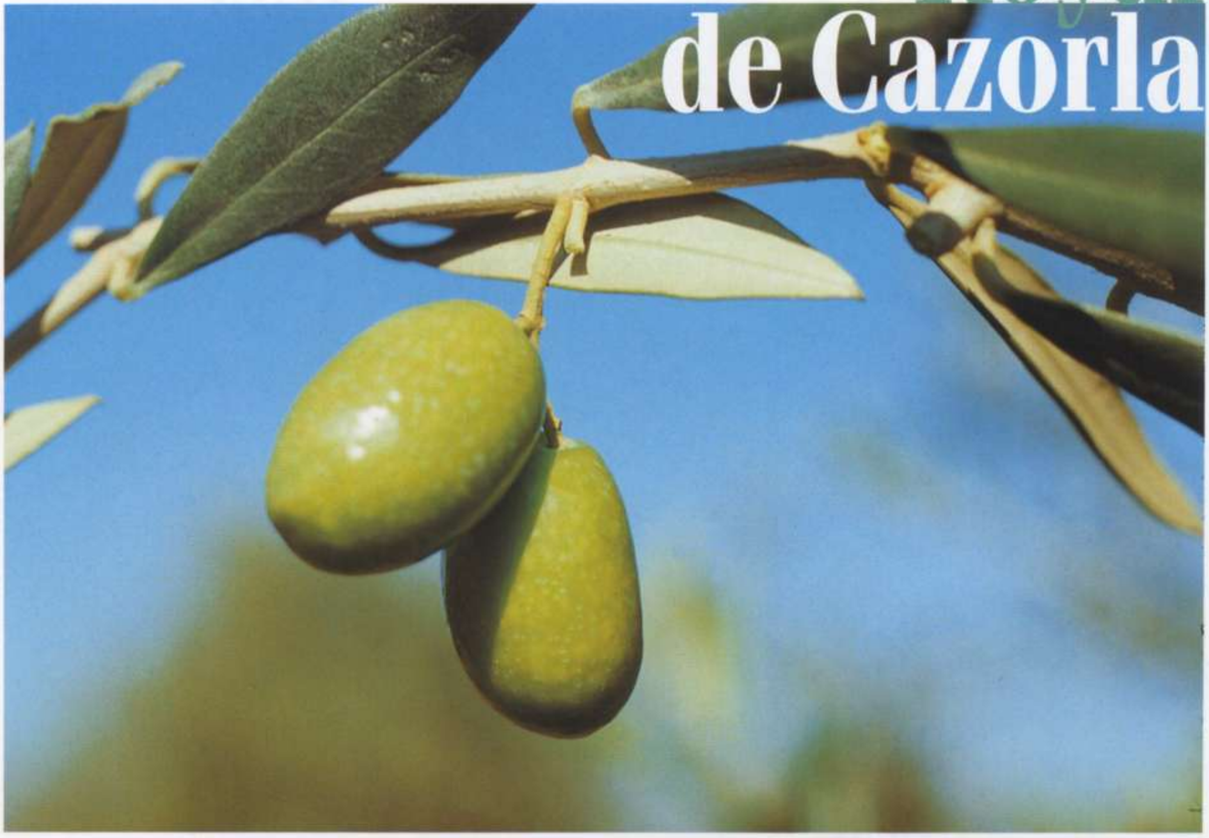
FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Royal de Cazorla



SYNONYMS: "Royal".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is localised in the Cazorla-Quesada district of the province of Jaén where it is grown on almost 2,000 ha.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is not very vigorous. It does not tolerate severe pruning but it is very hardy and adapts to poor soils.

It comes into bearing late. Flowering is early and ripening is late. Productivity is high and constant. The fruit has a high removal force, which hinders mechanical harvesting.

It has a medium-to-low content of very good quality oil.

It is considered susceptible to olive leaf spot and olive knot.

Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

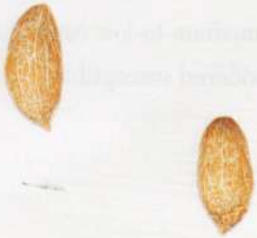
SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	smooth-rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro



Sevillenca

SYNONYMS: "Falguera", "Serrana", "Serrana de Espadan", "Sevillenc", "Solivenc".

ORIGIN: Spain (ES).

DISTRIBUTION: The cultivation of this variety is localised primarily in the provinces of Tarragona and Castellón where it is grown in all on almost 25,000 ha.

PURPOSE: Oil.

Agronomic and commercial considerations

This vigorous variety is not considered hardy because of its susceptibility to drought.

It has a medium rooting ability when propagated as a cutting.

It has an intermediate start of bearing and flowering is late.

Productivity is high and constant. The time of fruit ripening is intermediate. The ratio between the fruit removal force and fruit weight is low, which facilitates mechanical harvesting.

The fruit has a medium oil content. The oil is also of medium quality because of its low oleic acid content and low stability although it is prized for its organoleptic properties. The oil is extracted with ease.

Sometimes it is also used for pickling and it has a medium flesh-to-stone ratio. It is susceptible to olive fly and olive leaf spot.

Morphological characters

TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	high

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Verdial de Badajoz

SYNONYMS: "Macho", "Manzanilla Rabuda", "Mollar", "Zorzaleño".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is grown on 20,000 ha in the provinces of Badajoz and Cáceres.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is very vigorous. It is rated highly for its marked resistance to drought, which makes it recommendable rootstock for more susceptible varieties.

It has a medium rooting ability and a limited capacity to send out new shoots after severe pruning.

Its start of bearing is intermediate.

Its time of flowering is also intermediate and it tends to have high pistil abortion rates.

Productivity is medium and alternate. The time of ripening is intermediate and the fruit has a high removal force, which hinders harvesting.

It is valued for oil production because of its high oil content and for pickling because of its size and the ease with which it is prepared.

It is considered very susceptible to olive knot and susceptible to olive anthracnose and olive fly.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	epinastic

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Verdial de Huevar

SYNONYMS: "Verdial", "Verdial Duro" and "Verdial Real" in Spain; "Verdeal Alentejana" and "Verdeal de Serpa" in Portugal.

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is grown on some 30,000 ha in Spain, in the provinces of Huelva and Seville. It is also found widely in the Alentejo in Portugal (PT).

PURPOSE: Oil.

Agronomic and commercial considerations

This variety adapts very well to damp, compact soils and to drought conditions. This makes it recommendable for use as rootstock although it has an unfavourable effect on the shape and colour of the fruit of the grafted varieties. It is also considered tolerant of winter freezing.

It has a low rooting ability.

It has a late start of bearing. Flowering is also late and it is regarded as being partially self-incompatible. It has a high pistil abortion rate and its pollen has a poor germination capacity.

Productivity is low and alternate and ripening is very late, so much so that it does not turn black (hence its name of "Verdial", which means greenish). It has a very high removal force, which hinders mechanical harvesting.

It gives a medium yield of oil that is considered to be of good quality. The fruit is also used for making oxidised black olives owing to the firm texture of the flesh.

It is considered sensitive to olive leaf spot and verticillium wilt. It is resistant, however, to olive knot and olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	present
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

Verdial de Vélez-Málaga

SYNONYMS: "Verdial".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is localised in the south-eastern part of the province of Málaga where it is grown on more than 20,000 ha.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is of medium vigour and does not tolerate severe pruning to which it responds with difficulty.

It has a low rooting ability. It has an intermediate start of bearing. Productivity is high and constant. Ripening is early-intermediate and the fruit has a relatively high removal force. It is prized for the high content and excellent quality of its oil.

It is considered sensitive to olive leaf spot and resistant to olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	high

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	short
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium
SHAPE:	spherical
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Verdiell

SYNONYMS: "Verdiella".

ORIGIN: Spain (ES).

DISTRIBUTION: This variety is cultivated in the province of Lleida where it is grown on almost 3,000 ha.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is resistant to cold but susceptible to drought. It is propagated easily as a leafy stem cutting under mist propagation. Its start of bearing is intermediate. Productivity is high and alternate. The fruit ripens late and it has a high removal force that hinders any method of harvesting. It has a medium content of oil that is extracted with difficulty and that is very stable.

It is considered quite tolerant of pests and diseases.

Morphological characters

TREE

Vigour:	weak
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	short
Width:	narrow
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	low
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate-rounded
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	low
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	medium
Termination of apex:	with mucro

Villalonga

SYNONYMS: "Forna", "Manzanet", "Manzanilla" and "Valenciana" in Spain; "Blanqueta de Elvas" and "Branquita" in Portugal.

ORIGIN: Spain (ES).

DISTRIBUTION: This is the main variety in the province of Valencia and in the northern area of Alicante. In all, it is grown on more than 24,000 ha. It has also spread through the district of Elvas in Portugal (PT).

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is productive but demanding as regards growing conditions. It is considered susceptible to cold and drought. It does seem, however, to be tolerant of excess soil moisture.

It has a low rooting ability.

It comes into bearing early. Its time of flowering is intermediate and it tends to have low pistil abortion rates.

Productivity is high and constant. The fruit ripens early and has a low removal force which, combined with the erect growth habit of its branches, facilitates mechanical harvesting.

It has a high content of very good quality oil. When used for pickling it is rated highly for processing as both green and black olives; it is clingstone.

It is considered very susceptible to olive knot and olive leaf spot.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	long
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

SYRIA

SYRIA

OLIVE CROP AREA: 453,564 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	125,000	70,000	115,000
Imports	0	0	0
Exports	6,000	3,000	4,000
Consumption	85,000	95,000	88,000
TABLE OLIVES (t)			
Production	90,000	60,000	80,000
Imports	0	0	0
Exports	3,500	1,000	1,000
Consumption	80,000	66,000	72,000

Abou-Satl

SYNONYMS: "Mhazam".

ORIGIN: Syria (SY).

DISTRIBUTION: Palmyra.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is vigorous and is considered very hardy because of its tolerance of cold and drought. It holds particular interest because of its high resistance to salinity.

It has an intermediate start of bearing. It is self-compatible and its time of flowering is intermediate. Productivity is high and alternate. The time of ripening is intermediate and the fruit has a medium removal force.

It is used solely for table olives since its oil content is low; it is freestone.

It is considered resistant to olive leaf spot, olive knot and olive anthracnose.

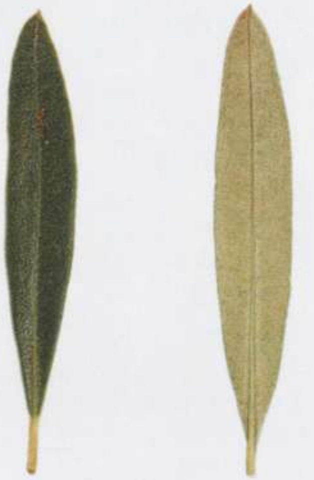
Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	long
Number of flowers:	low



LEAF

Shape:	lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards base
Apex:	pointed
Base:	rounded
Surface:	rugose-scabrous
Number of grooves:	medium
Termination of apex:	without mucro or with small mucro

Doebli

SYNONYMS: "Dremlali", "Tamrani".

ORIGIN: Syria (SY).

DISTRIBUTION: Latakia, Tarţūs, Tel-Kalakh; it accounts for 7% of olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety adapts well to damp areas but shows little tolerance of drought. It has a medium rooting ability when propagated as a leafy stem cutting.

It comes into bearing late and flowers early. It is considered self-compatible and usually has a low pistil abortion rate. Productivity is high and alternate. The fruit ripens early and has a low removal force. It has a medium oil content.

It appears to be resistant to olive leaf spot, olive knot and verticillium wilt.

Morphological characters

TREE

Vigour:	medium
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	rugose
Number of grooves:	low
Termination of apex:	without mucro

Kaissy

SYNONYMS:	"Khalkhaly".
ORIGIN:	Syria (SY).
DISTRIBUTION:	North of Syria and new olive-growing areas in the South.
PURPOSE:	Table.

Agronomic and commercial considerations

This low-vigour variety is tolerant of cold and drought. It has a low rooting ability.

It comes into bearing early. Its time of flowering is intermediate and it is considered self-compatible. Productivity is high and alternate. The fruit ripens early and it has a low removal force. It is used primarily for green pickling. Its oil content is very low although the oil is good quality, and it is freestone.

It appears to be resistant to olive leaf spot and olive knot.

Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	drooping
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	high
SHAPE:	spherical
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
SURFACE:	scabrous
NUMBER OF GROOVES:	low
TERMINATION OF APEX:	with mucro

Sorani

SYNONYMS: "Maari".

ORIGIN: Syria (SY).

DISTRIBUTION: Aleppo, Hamāh and Idlib; the whole northern and north-eastern part of the country.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This hardy variety holds a lot of interest because of its tolerance of cold, drought and salinity. It comes into bearing late.

Flowering is late. It is self-compatible and it has a low pistil abortion rate. Productivity is medium and alternate. The time of ripening is intermediate and the fruit has a low removal force.

It is rated highly for both pickling and oil production, giving a high content of excellent quality oil.

It is considered resistant to olive leaf spot and olive knot and susceptible to verticillium wilt.

Morphological characters

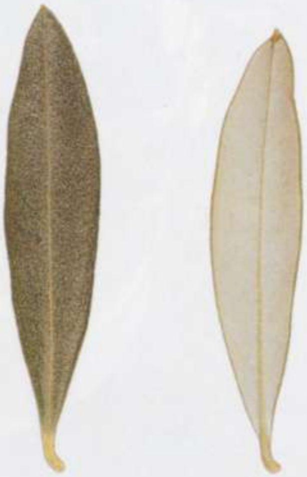
TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF



SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Zaity

SYNONYMS: "Assil", "Houlkani", "Kurdi", "Zeity".

ORIGIN: Syria (SY).

DISTRIBUTION: It is grown on some 130,000 ha in the northern part of the country.

PURPOSE: Oil.

Agronomic and commercial considerations

This variety is of medium hardiness and is rated highly for its high yield (about 30%) of good quality oil. However, it is sensitive to drought.

It has an intermediate start of bearing and flowers early. It is self-incompatible and it has a high pistil abortion rate. Its pollen has a low germination capacity.

Productivity is high and alternate. It is characterised by the production of a very high percentage of parthenocarpic fruits: these are very small, of little commercial value and hinder harvesting.

The fruit ripens early and it has a low removal force, which facilitates mechanical harvesting. It has a high oil content.

It shows some tolerance of cold and salinity and it is considered resistant to olive leaf spot and olive knot.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	long
Number of flowers:	medium

LEAF

Shape:	elliptic
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	spherical
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	rugose
Number of grooves:	high
Termination of apex:	with mucro

TUNISIA

TUNISIA

OLIVE CROP AREA: 1,624,000 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	270,000	93,000	215,000
Imports	0	0	0
Exports	115,000	117,000	175,000
Consumption	70,000	52,000	49,000
TABLE OLIVES (t)			
Production	15,000	13,000	14,000
Imports	0	0	0
Exports	500	500	500
Consumption	14,500	12,500	13,500

Chemlali de Sfax

SYNONYMS:	"Sahali".
ORIGIN:	Tunisia (TN).
DISTRIBUTION:	North-eastern, central-coastal, southern and far southern Tunisia; it extends over about 60% of olive-growing acreage.
PURPOSE:	Oil.

Agronomic and commercial considerations

This variety is of very ancient origin and makes up the "forest" of Sfax. This area is characterised by an average annual rainfall of barely 200 mm, with variations ranging from 80 to 350 mm depending on the year. It is the most important, most widespread variety in the country. It is spread along the length of the eastern coast of Tunisia, from Korba to Gabès. It has performed well also in the south-western part of the country, more exactly at Sidi Bouzid and Meknassi. The tree is vigorous and productive in northern Tunisia, at Mornag and Krib, but the oil is difficult to extract from the fruit. Attempts have been made to introduce it to the central parts of the country such as Aïh Jloula, Oueslatia and Sbeitla where it is very sensitive to olive knot. The tree is very vigorous and hardy. It has a low rooting ability.

It comes into bearing late and it flowers early. It is self-compatible and produces abundant pollen. Productivity is high and alternate. The fruit ripens late. It is moderately sized and arranged in compact, sometimes numerous, clusters. The oil yield is medium to high, and may be as much as 25%, and the oil has a very characteristic chemical and aromatic profile.

It is resistant to drought especially when it is on its own roots, and it is moderately tolerant of salinity. In contrast, it is sensitive to olive knot.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	erect
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	low
SHAPE:	elliptic
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Chétoui

SYNONYMS: "Beldi", "Chaibi", "Tounsia", "Zaiati".

ORIGIN: Tunisia (TN).

DISTRIBUTION: In particular, the northern Tunisian coast. It extends over about 35% of the country's olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is of medium hardiness and it has a high rooting ability. Its start of bearing and time of flowering are intermediate. It is self-compatible and it has a medium pistil abortion rate. Productivity is low and constant. The fruit ripens in December and is picked in January and February.

It is one of the most important oil varieties grown in Tunisia and the main variety in the North. It is found in almost all the northern olive-growing regions where it accounts for 90-95% of the trees depending on the locality. It adapts particularly well to the coastal plains of the North where the average annual rainfall is never less than 400 mm.

It is used primarily for oil production (the oil is good quality) although it can also be used for black pickling. It is freestone and gives a medium oil yield.

It is tolerant of cold and salinity but requires good water supply. It is resistant to the most common olive diseases although it is sensitive to olive leaf spot.

Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	epinastic

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards base
APEX:	pointed
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	medium
SHAPE:	elongated
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Gerboui

SYNONYMS: "Ain El Gerboua", "Bidh el-Hammam", "Gerboua", "Petite Marsaline", "Ragragui".

ORIGIN: Tunisia (TN)

DISTRIBUTION: North of the country, traditionally in the high plateaus and more recently in the low valley of Medjerda. It extends over barely 0.1% of the country's olive-growing acreage.

PURPOSE: Dual-purpose

Agronomic and commercial considerations

This is one of the oldest known Tunisian cultivars, which is probably why it is seen through most of northern Tunisia where clusters of trees or old, single trees are found. It shows medium hardiness and vigour and it has a low rooting ability. The fruit is suitable for green or black pickling. It is marketed as "Petite Marsaline" and it is also used for oil production.

It comes into bearing early and also flowers early. It is partially self-compatible and it has a low pistil abortion rate. It produces a medium amount of pollen. Productivity is medium and alternate. The fruit ripens early; it has a low oil content and it is clingstone. Although it is cultivated without irrigation, it is quite sensitive to drought whereas it is moderately tolerant of salinity and it is resistant to cold.

It is highly resistant to olive leaf spot and olive anthracnose and moderately tolerant of olive knot.

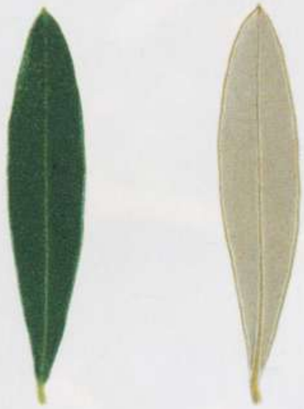
Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low



LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and large

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	truncate
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro or with small mucro

Meski

SYNONYMS: "Ktoubri", "Octoubri".

ORIGIN: Tunisia (TN).

DISTRIBUTION: North of Tunisia; it extends over about 0.5% of the country's olive-growing acreage.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is from the northern part of Tunisia. It shows little vigour or hardiness and it has a low rooting ability.

It has an intermediate start of bearing and flowers early. It is self-incompatible and it has a high pistil abortion rate. It produces little pollen. The varieties used the most as pollinisers are "Chétoui", "Besbessi" and "Picholine Languedoc". Productivity is medium and constant. The fruit ripens early. It has a low oil content and it is free-stone. It is used for green pickling and as it shows little bitterness it can be preserved without sweetening.

It is resistant to salinity, whereas it is sensitive to drought and calcareous soils. It is very susceptible to olive leaf spot. Despite the good quality of the fruit, this variety is not grown very widely because of its self-incompatibility, its low vigour and its susceptibility to olive leaf spot, which hinders its cultivation in high-density orchards. It is moderately resistant to olive knot.

Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium-high
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	truncate
NIPPLE:	present or absent
LENTICELS:	many and few

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro or with small mucro

Oueslati

SYNONYMS: "El Alaa", "El-guim", "El Hor".

ORIGIN: Tunisia (TN).

DISTRIBUTION: Regions of Oueslatia, Siliana and El-Alaa.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

The name of this variety comes from Djebel Oueslet, the centrepoint of its cultivation in the northern part of the country, stretching from the region of Siliana to Sidi-Nars-Allah and from Kesser to Dramatar.

Productivity is high and alternate. The fruit ripens early and it has a low removal force. Oil content is high. This variety has become consolidated in the central part of the country because of its resistance to olive knot. When planted in the central regions of Tunisia, the "Chemlali de Sfax" rapidly develops numerous bacterial knots that considerably reduce fruiting, whereas the trees belonging to the "Oueslati" cultivar are practically immune. It is considered the emblematic olive variety of the central regions.

It stands out for two main, much-sought characteristics: its resistance to olive knot and its distinctive small-volume canopy, which makes it highly suitable for establishing new, high-density orchards.

Morphological characters

TREE

VIGOUR:	weak
GROWTH HABIT:	spreading
CANOPY DENSITY:	sparse

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	medium
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	hyponastic

FRUIT

WEIGHT:	low
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	low
SHAPE:	elliptic
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	pointed
BASE:	pointed
SURFACE:	smooth
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

TURKEY

TURKEY

Olive crop area: 897,000 ha

	1996/97	1997/98	1998/99
Olive oil (t)			
Production	200,000	40,000	170,000
Imports	0	0	0
Exports	40,500	35,000	60,000
Consumption	75,000	85,500	97,000
Table olives (t)			
Production	185,000	124,000	210,000
Imports	0	0	0
Exports	30,000	23,000	30,000
Consumption	132,000	127,000	149,000

Ayvalık

SYNONYMS: "Ada Zeytini", "Edremit yağlık", "Midilli", "Şakran".

ORIGIN: Turkey (TR).

DISTRIBUTION: It extends over approximately 19% of the country's olive-growing acreage.

PURPOSE: Oil.

Agronomic and commercial considerations

This very vigorous cultivar is considered hardy and it is adapted to relatively arid areas. It is the second most important variety of Turkey. It is spread along the entire Aegean coast where it accounts for about 25% of olive-growing acreage. It has a high rooting ability.

It has an intermediate start of bearing. Its time of flowering is also intermediate. It is self-compatible and it has a low pistil abortion rate. It is considered an optimal polliniser for all the varieties of the Aegean region, except for the "İzmir Sofralık". Productivity is high and alternate. The time of fruit ripening is intermediate. The fruit has a high oil content (24%). Owing to the quality of the oil, which is aromatic and has distinctive chemical characteristics, it is considered the most promising of Turkey's oil cultivars. Its erect growth habit makes it particularly suited to mechanical harvesting. It is also used for producing split green olives and black olives. It has a flesh-to-stone ratio of 5.6 and it is clingstone.

It is tolerant of olive fly.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	erect
CANOPY DENSITY:	medium

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	medium

LEAF

SHAPE:	lanceolate
LENGTH:	medium
WIDTH:	narrow
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	with mucro

Çekişte

SYNONYMS: "Kırma".

ORIGIN: Turkey (TR).

DISTRIBUTION: İzmir and Aydın.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety originates from the area of Ödemiş (in the İzmir region) and has become consolidated along the Aegean coast, where it numbers some 1,300,000 trees. It is hardy, with a medium rooting ability.

It has an intermediate start of bearing. Flowering is early. Productivity is high and constant. When the fruit is for green pickling, the time of ripening is intermediate whereas when it is for black pickling it is late. It has a flesh-to-stone ratio of 5.6 and it is clingstone. The fruit is suitable for processing split green olives. However, because of its high oil content of over 26% at full maturity, it is considered a good dual-purpose variety.

It is resistant to periods of low rainfall and cold. For this reason it can be used in areas that are considered borderline for olive cultivation.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	medium
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	lanceolate
LENGTH:	medium
WIDTH:	narrow
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	high
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	truncate
NIPPLE:	present
LENTICELS:	few and small

ENDOCARP

WEIGHT:	high
SHAPE:	elliptic
SYMMETRY:	asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	pointed
BASE:	pointed
SURFACE:	rugose
NUMBER OF GROOVES:	medium
TERMINATION OF APEX:	without mucro

Çelebi

SYNONYMS: "İznik Çelebi".

ORIGIN: Turkey (TR).

DISTRIBUTION: Bursa, Kocaeli, Bilecik.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety originates from the area of Lake İznik, on the eastern side of the Sea of Marmara. Numbering some 400,000 trees, it accounts for 5% of the Marmara region's olive-growing acreage. It is hardy and has a low rooting ability, which means it is propagated by grafting.

It has an intermediate start of bearing. Its time of flowering is intermediate to early. Productivity is medium and alternate. When intended for green pickling, the time of fruit ripening is intermediate whereas when it is for black pickling it is intermediate to late. It is grown mainly as a table olive. Nevertheless, small fruit that cannot be used for this purpose is channelled into oil production. For this reason it is considered a dual-purpose variety.

The fruit is large and it has a flesh-to-stone ratio of more than 6 and a medium oil yield of about 20%; it is freestone.

It is moderately tolerant of cold.

Morphological characters

TREE

Vigour:	medium
Growth habit:	drooping
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	very high
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central or towards base
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded-truncate
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

Domat

SYNONYMS:	–
ORIGIN:	Turkey (TR).
DISTRIBUTION:	Manisa, İzmir, Aydın.
PURPOSE:	Table.

Agronomic and commercial considerations

This vigorous cultivar has particularly large fruit.

It is distributed unevenly throughout the Aegean region, with Akhisar at the centre of the growing area. Owing to its high and constant productivity and early bearing, it is very suitable for intensive irrigated orchards. It is not very hardy and its rooting ability is rather low.

It flowers early. It produces abundant pollen with a high germination capacity, which is why it is used as a polliniser. It has a low pistil abortion rate. The fruit ripens late and it does not turn fully black. It has a medium removal force and a medium oil content. Its characteristics make it particularly suitable for processing green olives with a variety of stuffings. It has a flesh-to-stone ratio of 5 and it is clingstone.

It is sensitive to cold, but is considered partially resistant to olive knot and to leopard moth.

Morphological characters

TREE

VIGOUR:	strong
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic-lanceolate
LENGTH:	long
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	very high
SHAPE:	ovoid
SYMMETRY:	symmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	many and small

ENDOCARP

WEIGHT:	high
SHAPE:	elongated
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	pointed-rounded
SURFACE:	rugose
NUMBER OF GROOVES:	low
TERMINATION OF APEX:	without mucro or with small mucro

Erkence

SYNONYMS:	"İzmir yağlık", "Yerli yağlık".
ORIGIN:	Turkey (TR).
DISTRIBUTION:	İzmir.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

There are about 3,000,000 trees belonging to this large, very vigorous variety in Turkey. It is considered of medium hardiness and it has a medium rooting ability.

It has an intermediate start of bearing. It flowers early and it is partially self-compatible. The "Ayvalık" variety is used as a polliniser for it. The pollen has a high germination capacity. Productivity is medium and alternate. The fruit gives an oil yield of 25%. It is used primarily for producing oil of good but inferior quality to that obtained from the "Ayvalık", "Memecik" and "Memeli" cultivars. It can also be used for green or black pickling. The fruit has a low removal force and natural fruit drop occurs prior to harvest. It is freestone.

In areas affected by frequent wet winds during ripening, the fruit is susceptible to *Phoma oleae*, which lessens its bitterness and causes a brown colouring to develop. In this case, the fruit can be eaten straight from the tree. When the fruit turns this particular colour it is known in Turkey as "Hurma", which means date.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	medium

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	towards apex
Apex:	pointed
Base:	pointed
Surface:	smooth-rugose
Number of grooves:	medium
Termination of apex:	with mucro

Gemlik

SYNONYMS: "Kaplık", "Kara", "Kıvırcık", "Trilye".

ORIGIN: Turkey (TR).

DISTRIBUTION: It is distributed along the Aegean and Mediterranean coast. It covers almost 80% of the olive orchards in the Sea of Marmara region and accounts for over 11% of the country's olive-growing acreage.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This is the variety that is used the most for black "Gemlik-style" olives. It has a high rooting ability.

Its time of flowering is intermediate. It is partially self-compatible; the "Ayvalık", "Çakır" and "Erkence" are used as pollinisers. It comes into bearing early. Productivity is high and constant. The fruit ripens very early, irrespective of whether it is for green or black pickling. It turns a very glossy black colour and has a good taste and texture. It has a flesh-to-stone ratio of 5.6 and it is freestone.

Owing to its high oil content (29%), any fruit that cannot be used for pickling is used for oil production, which is why it is considered dual-purpose.

It is partially resistant to low temperatures.

Morphological characters

TREE

VIGOUR:	medium
GROWTH HABIT:	spreading
CANOPY DENSITY:	dense

INFLORESCENCE

LENGTH:	short
NUMBER OF FLOWERS:	low

LEAF

SHAPE:	elliptic
LENGTH:	short
WIDTH:	medium
LONGITUDINAL CURVATURE OF THE BLADE:	flat

FRUIT

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	central
APEX:	rounded
BASE:	truncate
NIPPLE:	absent
LENTICELS:	few and small

ENDOCARP

WEIGHT:	medium
SHAPE:	ovoid
SYMMETRY:	slightly asymmetric
POSITION OF MAXIMUM TRANSVERSE DIAMETER:	towards apex
APEX:	rounded
BASE:	rounded
SURFACE:	rugose
NUMBER OF GROOVES:	high
TERMINATION OF APEX:	with mucro

İzmir Sofralık

SYNONYMS: –

ORIGIN: Turkey (TR).

DISTRIBUTION: İzmir.

PURPOSE: Table.

Agronomic and commercial considerations

This variety is only found in old olive orchards located in monoculture areas of İzmir. Crop acreage is declining owing to its low productivity and marked alternate bearing. One of the major problems affecting this variety is the formation of parthenocarpic fruit. It is not very hardy. It has a good rooting ability. It comes into bearing late and its time of flowering is intermediate to late. It is self-incompatible and has a high pistil abortion rate. It lacks adequate pollinisers, the best ones being "Memecik", "Gemlik" and "Erkence".

Productivity is low and alternate. The fruit is used for green pickling. It is clingstone, gives an oil yield of about 20% and has a flesh-to-stone ratio of 7. The fruit is not firm and it is damaged during transportation and handling. Owing to its poor vegetative growth, it does not tolerate drastic pruning.

It is sensitive to olive fly and olive moth.

Morphological characters

TREE

Vigour:	medium
Growth habit:	spreading
Canopy density:	sparse

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	present
Lenticels:	many and large

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	rugose
Number of grooves:	high
Termination of apex:	with mucro

Memecik

SYNONYMS: "Aşıyeli", "Gülümbe", "Şehir", "Taş arası", "Tekir", "Yağlık".

ORIGIN: Turkey (TR).

DISTRIBUTION: It is distributed along the Aegean and Mediterranean coast, particularly in the Aegean region where it accounts for 50% of the bearing trees. In addition, it accounts for 45.5% of total olive-growing acreage in Turkey.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is hardy and adapts readily to different soil and climatic conditions. It has a good rooting ability.

Its start of bearing and time of flowering are intermediate. It is partially self-compatible and it has a moderate pistil abortion rate. The "Ayvalık", "Gemlik", "Erkence" and "Memeli" cultivars are considered good pollinisers for this variety.

Productivity is high and alternate. Time of harvesting is intermediate when the fruit is intended for green pickling and for the production of good quality, very fruity oil. It has a high oil yield and a high flesh-to-stone ratio; it is clingstone. The green olives are processed as Spanish-style olives. This variety is also gaining prominence for black pickling.

It is tolerant of cold and bears conditions of extreme drought. It is moderately susceptible to olive fly.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	rounded
Surface:	scabrous
Number of grooves:	medium
Termination of apex:	with mucro

Memeli

SYNONYMS:	"Ak zeytin", "Emiralem".
ORIGIN:	Turkey (TR).
DISTRIBUTION:	Menemen, Kemalpaşa, Turgutlu.
PURPOSE:	Dual-purpose.

Agronomic and commercial considerations

This variety is widespread in the province of İzmir and surrounding areas where some 80,000 trees are grown. It has a medium rooting ability.

Its start of bearing and time of flowering are intermediate. It is partially self-compatible and it is considered a good polliniser for the "Memecik", "Ayvalık", "Gemlik", "İzmir Sofralık" and "Erkence" varieties. Productivity is medium and alternate. Time of harvesting is intermediate for fruit intended for both green and black pickling. The fruit is large and is used for green olives in brine, split green olives and black olives. It is also suitable for oil production. It has an oil yield of about 20%, and a fruit-to-stone ratio of 7; it is clingstone. In the Aegean region it is the third most important variety in terms of oil quality after the "Ayvalık" and "Memecik" varieties. Its versatility means it is used for household purposes. It responds well to pruning, even when severe, owing to its great vegetative growth.

It is sensitive to cold.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	present
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	rounded
Surface:	scabrous
Number of grooves:	high
Termination of apex:	with mucro

Uslu

SYNONYMS:	–
ORIGIN:	Turkey (TR).
DISTRIBUTION:	Manisa, İzmir, Muğla.
PURPOSE:	Table.

Agronomic and commercial considerations

This cultivar numbers some 900,000 trees in Turkey. It is considered hardy and very vigorous, and it has a low rooting ability.

It comes into bearing early. Flowering is early and it has a low pistil abortion rate. Productivity is medium and constant. The fruit ripens very early and it has a low removal force. The flesh is soft and therefore subject to damage during transportation and handling. It is freestone, and it has a high flesh-to-stone ratio.

It is sensitive to olive knot and leopard moth. It is susceptible to cold, for which reason the fruit has to be harvested in advance of the first winter cold in order to avoid pre-harvest fruit drop and the ensuing decrease in quality.

Morphological characters

TREE

Vigour:	strong
Growth habit:	spreading
Canopy density:	dense

INFLORESCENCE

Length:	medium
Number of flowers:	low

LEAF

Shape:	elliptic
Length:	long
Width:	broad
Longitudinal curvature of the blade:	hyponastic

FRUIT

Weight:	high
Shape:	ovoid
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	present or absent
Lenticels:	many and small

ENDOCARP

Weight:	high
Shape:	elongated
Symmetry:	asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	high
Termination of apex:	with mucro

WORLD CATALOGUE OF
OLIVE VARIETIES

UNITED STATES

UNITED STATES

OLIVE CROP AREA: 15,800 ha

	1996/97	1997/98	1998/99
OLIVE OIL (t)			
Production	1,000	1,000	1,000
Imports	140,500	144,000	162,000
Exports	8,000	4,500	5,500
Consumption	130,500	142,500	157,500
TABLE OLIVES (t)			
Production	144,000	90,500	77,500
Imports	77,000	88,000	90,000
Exports	5,000	5,500	8,000
Consumption	172,500	179,000	171,500

Mission

SYNONYMS: –

ORIGIN: United States (US).

DISTRIBUTION: Counties of Butte, Glenn and Tehama in the Sacramento valley, California. It covers 8% of the state's olive-growing acreage (270).

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

This variety is considered hardy because of its resistance to cold. It has a medium rooting ability. It is one of the most important table varieties cultivated in California although it was of much greater importance in the past, when it accounted for over 50% of Californian table olive production.

Its start of bearing is intermediate. It flowers in late May. It is self-compatible and it has a medium pistil abortion rate. Productivity is medium and alternate. Ripening is late. It is prized as a dual-purpose variety, being used for green and black pickling and for oil production. When mature, the fruit has an oil content of about 22%. The oil is good quality, especially that produced in Butte county (Sacramento valley). Time of harvesting depends on the end use of the fruit (table or oil). The fruit has a medium removal force and it is freestone.

The erect growth habit of the tree facilitates mechanical harvesting.

It is considered sensitive to olive leaf spot and verticillium wilt but it is resistant to olive knot.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	medium
Number of flowers:	medium

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	epinastic

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	truncate
Nipple:	absent
Lenticels:	many and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	slightly asymmetric
Position of maximum transverse diameter:	central
Apex:	pointed
Base:	pointed
Surface:	rugose
Number of grooves:	medium
Termination of apex:	with mucro

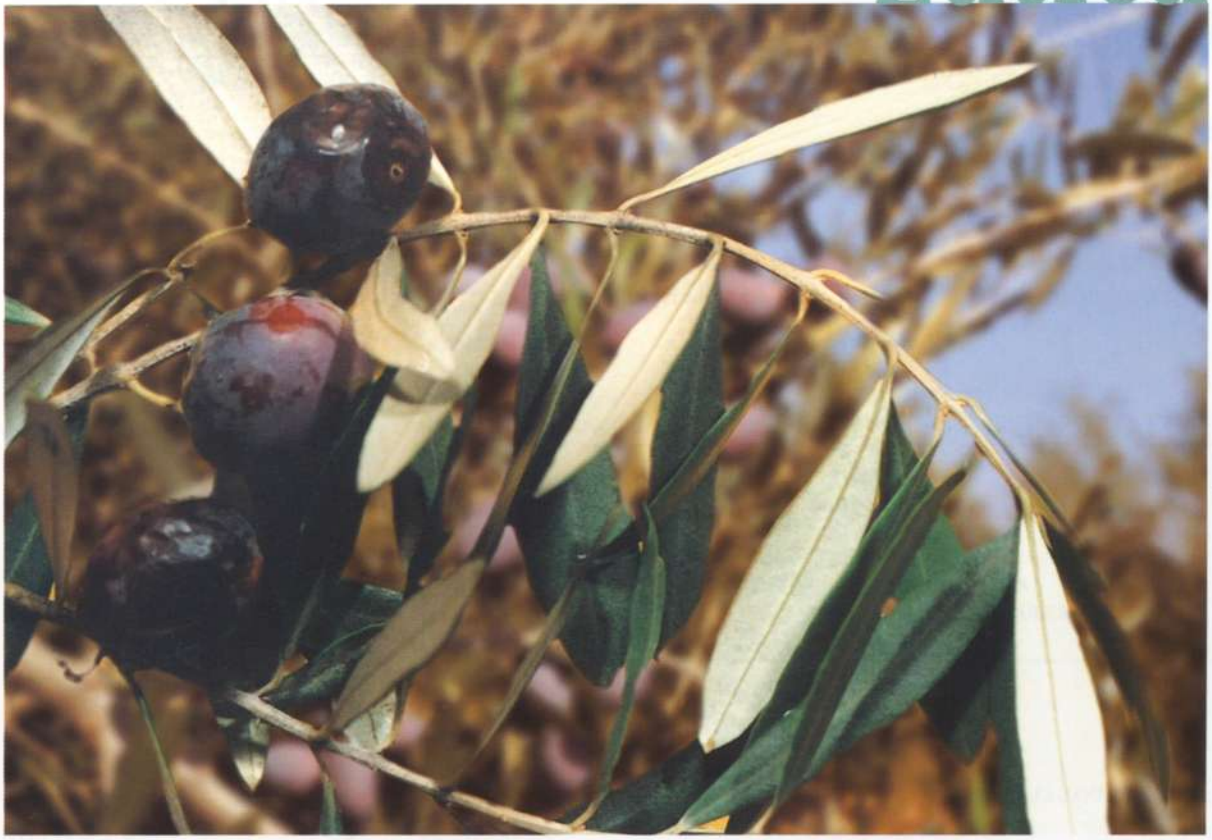
YUGOSLAVIA, F.R.

YUGOSLAVIA, F.R.

Olive crop area: 3,550 ha

	1996/97	1997/98	1998/99
Olive oil (t)			
Production	500	500	1,000
Imports	0	0	0
Exports	0	0	0
Consumption	500	500	1,000
Table olives (t)			
Production	500	500	500
Imports	0	0	0
Exports	0	0	0
Consumption	500	500	500

Žutica



SYNONYMS: "Bjelica", "Bjeliza", "Žutiza".

ORIGIN: Yugoslavia, F. R.

DISTRIBUTION: Coast of Montenegro; it extends over almost 2000 ha, representing approximately 65% of the olive-growing acreage of the Republic of Montenegro.

PURPOSE: Dual-purpose.

Agronomic and commercial considerations

The presence of this variety on the Montenegrin coast dates back to ancient times.

It is a vigorous, productive variety but its marked alternate bearing detracts significantly from its worth.

It has an early start of bearing and it flowers early. It is self-compatible and it has a high pistil abortion rate. Productivity is high and alternate. Its time of ripening is intermediate. It grows well in fertile land and does not tolerate damp soils. The tree limbs can break easily under the weight of snow or the action of strong winds. The fruit has a high removal force. Generally, it is used for oil production, and gives an oil yield of 22-23%, although it is also used for pickling. It is freestone and it has a flesh-to-stone ratio of 6.

Climatic conditions and plant health permitting, the fruit can remain a long time on the tree, so making it possible to delay harvesting. It is greatly appreciated by local consumers, who consider it irreplaceable because of the distinctive taste of its oil.

It is moderately sensitive to olive leaf spot and sensitive to attacks from olive fly and low temperatures. It is resistant to olive knot, olive anthracnose and *Cercospora cladosporioides*.

Morphological characters

TREE

Vigour:	strong
Growth habit:	erect
Canopy density:	medium

INFLORESCENCE

Length:	short
Number of flowers:	low

LEAF

Shape:	elliptic-lanceolate
Length:	medium
Width:	medium
Longitudinal curvature of the blade:	flat

FRUIT

Weight:	medium
Shape:	ovoid
Symmetry:	symmetric
Position of maximum transverse diameter:	central
Apex:	rounded
Base:	truncate
Nipple:	absent
Lenticels:	few and small

ENDOCARP

Weight:	medium
Shape:	elliptic
Symmetry:	symmetric
Position of maximum transverse diameter:	towards apex
Apex:	rounded
Base:	pointed
Surface:	smooth
Number of grooves:	high
Termination of apex:	with mucro

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